RAILROAD GAZETTE

FRIDAY, MAY 28.

Train Accidents in April.

The following accidents are included in our record for the month of April :

COLLISIONS.

REAR.

1st, a. m., freight on Pittsburgh, Cincinnati & St. Louis broke in two near Mansfield, Pa., and rear section ran into forward one, wrecking several cars.

1st, p. m., passenger train on New York, Lake Erie & Western ran into rear of freight at Passaic Bridge, N. J., damaging 1 car.

3d, a. m., freight on Naugatuck road ran over a misplaced switch and into a freight on a siding in Seymour, Conn., wrecking several cars and tearing away part of the freight house.

5th, very early, freight on New York, Lake Erie & Western ran into some cars which had been run out of a siding upon the main track at Hawthorn, N. J., in some unexplained way, damaging the engine and several cars.

5th, a. m., freight on Chicago & Northwestern ran into preceding freight in Chicago, wrecking several cars and injuring 2 trainmen. There was a heavy fog at the time.

7th, a. m., freight on Marietta & North Georgia broke in two at Tates, Ga., and 2 cars loaded with marble ran down grade for some distance and into a freight standing on the siding, wrecking 3 cars and engine.

9th, p. m., passenger train on Michigan Central ran into rear of freight at Comber, Ont., damaging several cars and injuring engineer.

12th, a. m., freight on New York, Lake Erie & Western broke in two near Middletown, N. Y., and rear section ran into forward one, wrecking 2 cars.

15th, very early, passenger train on Pittsburgh, Fort Wayne & Chicago ran into rear of preceding passenger train near Orrville, O., damaging a car and injuring a trainman.

15th, night, freight on Central Pacific ran into another freight which was just going into a siding at Osino, Utah, damaging the engine and injuring the engineer.

16th, night, freight on New York, Lake Erie & Western ran into preceding freight near Pond Eddy, Pa., damaging engine and 7 cars.

17th, a. m., freight on Missouri Pacific ran into preceding freight in St. Louis, damaging several cars.

17th, a. m., passenger train on Louisiana Western ran into rear of freight near Lake Charles, La., damaging several cars.

18th, p. m., freight on Rensselaer & Saratoga ran over a misplaced switch and into freight on a siding at Round Lake, N. Y., wrecking engine and several cars.

20th, a. m., passenger train on Manhattan Elevated ran over a misplaced switch and into another passenger train on a siding at 124th street in New York.

21st, a. m., passenger train on Boston & Lowell ran over a misplaced switch and into freight on a siding near Salem, Mass. Several cars were damaged and a brakeman hurt.

22d, a. m., coal train on New York, Lake Erie & Western broke in two in Jersey City, N. J., and rear section ran into forward one, wrecking several cars.

23d, p. m., passenger train on Rensselaer & Saratoga ran over a misplaced switch and into a freight on the siding at Green Island, N. Y., damaging several cars and injuring the engineer badly.

30th, night, coal train on New York, Lake Erie & Western broke in two near Vail's Gate, N. Y., and rear section ran into forward one, wrecking several cars.

BUTTING.

1st, very early, freight on Albany & Susquehanna broke in two near Schenevus, N. Y., and the detached section ran back down grade and into the head of a following freight, damaging the engine and 5 cars.

7th, p. m., butting collision between two freights on Georgia Pacific, near Birmingham, Ala., damaged both engines and several cars, injuring 3 trainmen slightly.

24th, night, butting collision between two passenger trains on Chicago, Burlington & Quincy near Creston, Ia., damaged both engines and several cars and injured 6 passengers.

CROSSING.

16th, night, New York, Pennsylvania & Ohio freight ran into Ashtabula & Pittsburgh freight at the crossing in Youngstown, O., damaging both engines.

20th, p. m., Delaware, Lackawanna & Western freight ran into New York, Lake Erie & Western passenger at the crossing in Binghamton, N. Y., damaging 1 car.

DERAILMENTS.

BROKEN RAIL.

16th, a. m., freight on Missouri, Kansas & Texas was derailed near Dangerfield, Tex., by broken rail.

29th, night, passenger train on Cincinnati, Hamilton & Dayton was derailed near Arlington, Ind., by broken rail, and 3 cars went down the bank, injuring the conductor and 4 passengers slightly.

BROKEN FROG.

22d, p. m., freight on Baltimore & Ohio was derailed near Wheeling, W. Va., by a broken frog.

BROKEN BRIDGE.

19th, a. m., passenger train on Atlantic & Pacific went through a bridge near Aubrey, Ariz. The engine and 2 cars went down, injuring 4 trainmen. The bridge was on fire, but the engineer did not discover it in time to stop the train.

30th, p. m., freight on Boston & Lowell went through a bridge near Lebanon, N. H. The engine passed over, but 10 cars went down with the bridge and were wrecked. A trainman was slightly hurt.

SPREADING OF RAILS.

8th, a. m., passenger train on Dayton & Ironton was derailed near Washington, O., by spreading of the rails, and a passenger was hurt.

14th, a. m., passenger train on Union Pacific was derailed near Oketo, Neb., by spreading of the rails, and two cars were thrown down a high bank into the Blue River, killing 2 passengers and injuring 13 others.

16th, night, freight on Wabash, St. Louis & Pacific was derailed near Clinton, Ill., by spreading of the rails, injuring 5 trainmen.

19th, p. m., freight on Texas & Pacific was derailed at Millsap, Tex., by spreading of the rails. A man who was riding on a car of barb wire was killed, his body being frightfully lacerated by the wire.

BROKEN WHEEL.

5th, a. m., engine of freight on Pennsylvania Railroad was derailed in Philadelphia by breaking of a tire on the driving wheel.

27th, very early, 10 cars of coal train on New York, Lake Ere & Western were derailed near Otterkill, N. Y., by broken wheel.

BROKEN AXLE.

6th, p. m., milk train on New York, Ontario & Western was derailed at Whirling Eddy, N. Y., by a broken axle.

8th, a. m., freight on Connecticut & Passumpsic Rivers was derailed near Thetford, Vt., by a broken axle. One trainman was hurt.

22d, p. m., 3 cars of freight on Philadelphia & Reading were derailed at Elizabethport, N. J., by broken axle.

30th, p. m., freight on Fitchburg Railroad was derailed near Royalston, Mass., by broken axle.

BROKEN BRAKE-BEAM.

13th, noon, 5 cars of coal train on New York Central & Hudson River were derailed near Charlotte, N. Y., by a brake-beam dropping down on the track.

ACCIDENTAL OBSTRUCTION.

6th, night, freight on Chesapeake & Ohio was derailed near Sewell, W. Va., by a rock which had rolled down on the track. A brakeman was killed.

CATTLE.

14th, a. m., freight on Chicago & Alton ran over a cow near Independence, Mo., and 8 cars were derailed and wrecked, killing a brakeman.

19th, p. m., freight on Michigan Central ran over some cattle near Terry, Mich., and engine and 8 cars were derailed.

28th, night, freight on Texas & Pacific ran over some cattle near Waldo, Tex., and the engine and 12 cars were derailed, injuring 1 trainman.

LAND-SLIDES AND WASH-OUTS.

7th, night, Fitchburg passenger train on Troy & Greenfield road was derailed near Bardwell's Ferry, Mass., probably by the washing out of the bank in a sidehill cut. The train consisted of six cars, baggage, mail, smoking, sleeping and two passenger cars. The engine remained on the roadbed, but the cars broke loose and went down a very high bank, lodging below on the edge of the Deerfield River, which was swollen much beyond its usual size. The cars caught fire from the stoves, and all but one of the passenger cars were entirely destroyed. There were 48 persons upon the train, of whom 11 were killed or fatally injured and 36 hurt, and only one escaped unharmed. The 36 wounded include 6 trainmen, and one trainman was among the fatally hurt.

9th, night, freight on Dunkirk, Allegheny Valley & Pittsburgh was derailed by a land-slide near Fredonia, N. Y. A car loaded with oil caught fire, and 10 cars were destroyed.

12th, night, freight on Baltimore & Ohio ran into a land-slide near Fort Hill, Pa., and the engine and 7 cars were piled up in a bad wreck, killing the engineer and injuring the fireman.

18th, a. m., freight on Kansas City, Springfield & Memphis ran into wash-out near St. Francis River, Ark., wrecking engine and 8 cars.

20th, p. m., coal train on Philadelphia & Reading ran into a land-slide near Port Clinton, Pa., derailing locomotive and 40 cars.

28th, very early, construction train on Illinois Central ran into a wash-out near Montgomery, Miss., the engine and several cars going down. Two trainmen were killed and 3 injured.

WIND.

7th, noon, passenger train on Port Huron and Northwestern was blown from the track in a wind storm near East Saginaw, Mich. Three cars went into the ditch, injuring 3 trainmen and 8 passengers.

MISPLACED SWITCH.

3d, a. m., passenger train on New Brunswick Railway was derailed at Fredericton Junction, N. B., by a misplaced switch.

3d, night, freight on Chicago, St. Paul, Minneapolis & Omaha was derailed at Menominee Junction, Wis., by misplaced switch. Engineer was hurt.

5th, night, passenger train on Kansas & Gulf Short Line was derailed in Tyler, Tex., by misplaced switch.

20th, a. m., freight on Pennsylvania Railroad was derailed at Harmarsville, Pa., by misplaced switch, and 3 trainmen were hurt.

MALICIOUSLY CAUSED.

20th, night, freight on East Tennessee, Virginia & Georgia was derailed near Rome, Ga., by timber piled up on the track. The engine upset, killing the fireman and injuring the engineer.

22d, a. m., freight on Missouri Pacific was derailed near Alvarado, Tex., where a rail had been removed from the track. The engine was wrecked and 3 trainmen hurt.

25th, night, freight on Missouri Pacific was derailed near Wyandotte, Kan., where the fastenings had been removed from 2 rails The engine was wrecked, the fireman and a brakeman killed and the engineer hurt,

UNEXPLAINED.

19th, p. m., engine and 6 cars of freight on Boston & Maine were derailed in Newburyport, Mass., blocking the road 6 hours.

17th, a. m., freight on Galveston, Harrisburg & San Antonia was derailed near Del Rio, Tex. Four cars were wrecked.

22d, a. m., passenger train on Northern of New Jersey was derailed at Englewood, N. J., and engine badly damaged.

27th, night, car of freight on Pennsylvania Railroad was derailed at Gallitzin, Pa., and wrecked.

28th, a. m., freight on New York, Pennsylvania & Ohio was derailed near Grant, Pa., and the engine upset, killing the fireman.

OTHER ACCIDENTS.

BROKEN PARALLEL-ROD.

13th, a. m., locomotive of passenger train on Chicago, Milwaukee & St. Paul broke a parallel-rod when near Turkey River, Ia., doing some damage.

MISCELLANEOUS.

19th, night, freight on Louisville, New Orleans & Texas, ran into a tree blown down across the track near Boguechitto, Miss., damaging, but not derailing the engine.

25th, p. m., car of freight on Louisville & Nashville caught fire when near Montgomery, Ala., and was destroyed.

SUMMARY.

This is a total of 66 accidents, in which 23 persons were killed and 105 hurt. As compared with April of last year, there was a decrease of 15 accidents, but an increase of 9 killed and 30 injured.

The four months of the current year to the end of April show a total of 339 accidents, 134 killed and 483 hurt; an average per month of 85 accidents, 34 killed and 121 injured.

A fuller statement of the totals and averages, with a summary of the causes of accident, will be found on another page.

Master Car-Builders' Association Circulars.

The following circulars have been issued from the Secretary's office in New York, under date of May 15 :

TWENTIETH ANNUAL CONVENTION, 1886.

The Twentieth Annual Convention of the Master Car-Builders' Association will be held at Niagara Falls, beginning on Tuesday, June 8, at 10 a. m. The following is a list of the subjects on which it is expected that special reports will be made, and which will be discussed during the sessions of the Convention :

1. Standard Freight-Car Trucks.
2. Standards and Appliances for the Safety of Trainmen.
3. British and Continental Practice in Matters of Interest to the Master Car-Builders' Association.
4. Automatic Freight-Car Brakes.
5. Trap-doors in the Roofs of Passenger Cars.
6. Standard Dead-blocks.
7. The Comparative Advantages of the Two Methods of Constructing Freight Cars, with and without Platform Timbers or End Sills projecting from the End of the Car.
8. Maximum Outside Dimensions of Freight Cars.
9. Standard Draw-gear for Non-automatic Couplers.
10. Appliances to Prevent the Slipping of Wheels, both Passenger and Freight.
11. Committee on Revising the Height of Miller Draw-bar.
12. Committee to Codify the Rules of Interchange.

At the last Annual Convention of the Association the revision of the rules governing the condition of, and repairs to, freight cars for the interchange of traffic was made a part of the business of the Master Car-Builder' Association instead of being under the jurisdiction of a separate organization as heretofore. The revision of these rules will be the special order of the business at 3 o'clock p. m., on the second day, Wednesday, June 9, of the session of the Convention. In order to take part in this revision the representatives of railroad companies must be members of the Association.

Arrangements have been made with the proprietors of the International Hotel for the accommodation of all persons attending the Convention, at $3 per day. Those disposed to engage rooms in advance should communicate with the proprietor, A. H. Gluck, Niagara Falls, N. Y.

Representative members are requested to report to the Secretary, either before or at the Convention, the number of cars owned by the companies.

B. K. VERBRYCK, President,
M. N. FORNEY, Secretary,
73 Broadway, New York.

MEMBERSHIP IN THE ASSOCIATION.

To Presidents, General Managers and General Superintendents of Railroads :

The Twentieth Annual Convention of the Master Car-Builders' Association will be held at Niagara Falls, beginning at 10 a. m., on Tuesday, June 8. The chief object of the Association, as stated in its constitution, is "to provide an organization through which its members, and the companies they represent, may agree upon such joint action as may be required to bring about uniformity and interchangeability in the parts of railroad cars, to improve their construction, and to adjust the mutual interests growing out of their interchange and repair." The constitution states further, that "the action of the Association shall have only a recommendatory character, and shall not be binding upon any of its members or the companies represented in it."

The following is a list of the companies which were represented in the Association last year, with the number of cars owned by each :

Railroad Co.	*Cars owned.*	*Railroad Co.*	*Cars owned.*
Atlantic Ave., of B'klyn.	96	Intercolonial	4,745
Atlantic & Pacific	1,240	Kansas City, Ft. S. & G.	3,424
Boston & Albany	6,478	Lake Shore & Mich. So.	16,000
Boston & Maine	1,854	Lehigh Valley	24,247
Boston, H. Tunnel & W.	1,038	Louisville & Nashville	10,911
Buffalo, N. Y. & Phila.	5,680	Louisville, Ev. & St. L.	1,050
Burlington & Mo. River, in Neb.; St. Louis, Keokuk & N. Western, Chicago, Bur. & Kan. City, Han. & St. Joseph, Kan. City, St. Joseph & Council Bluffs, and Chicago & Iowa R.R.	7,849	Louisville, New A. & C.	2,286
		Maine Central	2,232
		Marquette, H. & Ont.	1,352
		Michigan Central	12,110
		Minneapolis & St. Louis	2,008
		Mobile & Ohio	1,553
		New York & New Eng.	3,952
		New York Cent. & H. R.	31,117
Bur., Cedar R. & No.	4,307	New York, Chic. & St. L.	7,245
Central Vermont R.R.	3,256	New York, L. E. & W.	31,000
Chesapeake & Ohio	5,953	New York, New H. & H.	3,425
Chicago & Alton	6,666	New York, Penn. & Ohio	7,822
Chicago & Eastern Ill.	3,800	N. Y., West Shore & B.	7,721
Chicago & Grand T. and Det., Grand H. & Mil.	3,711	Norfolk & Western	3,818
		Northern Pacific	9,697
Chicago, Bur. & Quincy	17,940	Ohio & Mississippi	3,134
Chicago, Mil. & St. Paul	20,498	Old Colony	2,647
Chicago, Rock I. & Pac.	8,081	Peoria, Decatur & Ev.	1,705
Chicago, St. Louis & W.	2,000	Penn. & New York	384
Chicago, St. P., M. & O.	5,459	Pennsylvania Co.	23,606
Cleve., Col., Cin. & Ind.	8,386	Pennsylvania, Northern Central, West Jersey, Phila., Wil. & Balt., Alex. & Fredericksburg, and Balt. & Pot.	47,013
Cleveland, Mt. V. & Del.	776		
Connecticut River	529	Petersburg	144
Cumberland Valley	575	Pittsburgh & Lake Erie.	1,801
Del. & Hud. Canal Co.	11,392	Pitts., Cin. & St. Louis	10,820
Delaware, Lack & West.	24,000	Richmond & Danville.	2,598
Des Moines & Ft. D.	290	Rich., Fred. & Potomac.	141
Det., Grand H. & Mil.	700	Rome, Water. & Og.	1,769
Det., Lansing & North	2,681	Shenango & Alleghany	248
Det., Mackinac & Mar.	850	Southern Central	375
E. Tenn., Va. & Ga. R.R.	3,297	St. L., Keokuk & N. W. and C., Bur. & Kan. C.	496
Fitchburg	3,371		
Flint & Pere Marquette.	2,500	St. Paul & Duluth	720
Grand Trunk (G.W. Div.)	5,351	Western Car Co.	1,200
Grand Trunk	10,375	Wilmington & Northern.	155
Houston & Tex. Central.	2,070		
Illinois Central	9,075		
Ind., Bloom. & Western.	4,607		

Total number of cars represented.....486,882

The constitution of the Association provides that "any person having a practical knowledge of car construction may become a representative member by receiving a *written* appointment from the President, General Manager or General Superintendent of any railroad company to represent its interests in the Association."

The enormous growth of the railroad system of the country and the extent and complicity of the interchange of traffic make it more and more important that the construction of cars should be suited, not only for service in the lines to which they belong, but to the conditions existing in other lines; and the repairs of cars used in the interchange of traffic is each year becoming a matter of more importance to railroad companies. The settlement of the accounts growing out of such repairs has resulted in the creation of a code of rules, which will hereafter be revised annually by the Master Car-Builders' Association. Nearly all railroad companies are now interested to a greater or lesser extent in these rules, and the only way by which they can be modified or amended is through the Car-Builders' Association.

It is, therefore, believed that all railroad companies will

find it to their interest to send representatives to the meetings of the Association. Your company is invited to do so, and with that object in view, a blank appointment is enclosed herewith, which should be either forwarded to the Secretary before the next annual meeting, or handed to him at that time. The conditions of membership in the Association will be found on the back of the blank sent herewith.

By order of the Executive Committee.

M. N. FORNEY, Secretary,
73 Broadway, New York.

MEMBERSHIP IN THE ASSOCIATION.

To Master Car-Builders:

The Twentieth Annual Convention of the Master Car-Builders' Association will be held at Niagara Falls, begining at 10 a.m., on Tuesday, June 8. The constitution provides that "any person holding the position of Superintendent of the Car Department, Master Car-Builder, or Foreman of a Railroad Car Shop, or one representative from each Car Manufacturing Company, or other company owning over 1,000 cars which are not in process of purchase by other parties, may become an Active Member by paying his dues for one year."

It is thought that all Master Car-Builders will find it profitable and interesting to belong to the Association, and all who do not now belong to it are invited by the Executive Committee to become members at the next convention. With that object in view a blank application for membership is inclosed, which you are requested to fill out, and either forward to the Secretary, or hand to him at the Convention. The terms and conditions of membership in the Association will be found on the back of the blank inclosed.

M. N. FORNEY, *Secretary*,
73 Broadway, New York.

Proposed St. Lawrence River Bridge at Lachine.

The interesting and novel feature of this design, which is now in process of construction, is, of course, the method of passing from through to deck spans by a device as to the grace and utility of which opinions will differ, but which would appear to be, on the whole, a very satisfactory solution of the difficult and heretofore unsolved problem of giving some approach to grace to an essentially ugly, but often unavoidable combination, viz.: Through trusses for the channel spans of bridges over navigable rivers (in order to obtain the utmost possible head room) and long series of deck trusses for the adjacent spans over flats or shallow waters, where head room is of no importance, and hence where the use of through spans would be an entirely unnecessary expense.

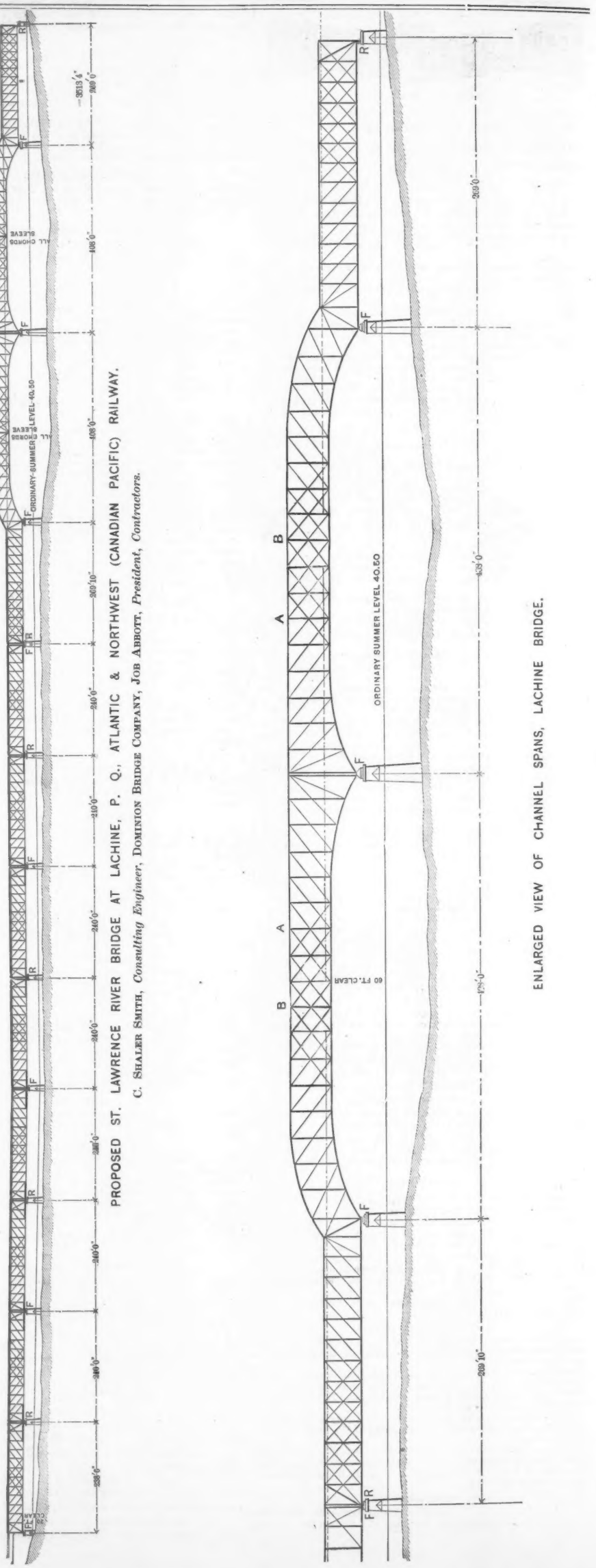
There are great numbers of such combinations of through and deck spans throughout the country, and surely will be more. Their ugliness results, of course, from the sharp break in the continuity of the lines of the structure, which destroys all dignity and pleasing effect, and gives them a flimsy and make-shift look. Whether giving to the through spans the form of a bastard arch which is not an arch is any real remedy may plausibly be disputed, but we are inclined a to think that the design shown will be generally considered a more pleasing, or rather less ugly, solution of the problem than the ordinary form, and so, on this ground alone, worthy of use in such localities.

Not that we would imply that this is the only or probably the chief purpose of the design. Such devotion to æsthetics is hardly to be expected. Certain advantages in respect to convenience of erection and economy of material are claimed as well, and where the erection of false works is difficult, or impossible, are evident. In the Lachine Bridge, the main spans are to be erected without any false work by cantilevering out from each end, and from the middle pier, to the point *a*. Sleeve joints, which it was at first proposed to use at the centre of the channel spans, have been discarded, for the reason that it was found that much better (more rigid) lateral systems could be had without them, at the same time reducing the cantilever deflections due to live loads. The whole four spans shown in the enlarged view are one continuous truss. The bearing on the centre pier of the channel spans is the only fixed point. The other two channel piers, each side of the centre, have roller bearings, while the outer ends of the flanking spans have vertical adjustments in the beds, and slip joints for the rails. In erection the structure will be continued out from the "flanking span" to *B*, at the centre of the main spans. The central portion will be boated out to the centre pier. Small trusses on the centre pier, shored up from the coffer-dam and pier, will support the central part, which will be erected by the aid of two travelers working each way from the centre. The central part will be kept constantly guyed to cantilevers extended out from the "flanking" or end spans to transmit wind strains as well as any tipping tendency during erection.

The total length of the whole structure is 3,513 ft. 4 in., including three plate-girder spans, not shown, at the north (left) end of the structure. At the south end there is to be a temporary wooden trestle. The width of the bridge is 20 ft., centre to centre of bed plates, on the four channel spans, and 16 ft. on all the other spans. The two arched spans are 40 ft. deep, the clear height above the summer stage of water being 60 ft. and 29 ft. 8 to 10 in. for the remaining spans, the base of rail being 64 ft. 10 in. above the water.

The contractors for the work are the Dominion Bridge Co., of Montreal, whose works—which are among the most perfectly appointed in the country—are in the immediate vicinity of the structure. One of the interesting features of these works is that gas only is used for fuel in all parts of the works manufactured on the premises from slack brought from Nova Scotia. The bridge is being constructed in the Canadian Pacific interest and the contract was obtained only after sharp competition.

The peculiar design was originated by Mr. C. Shaler Smith, Consulting Engineer of the bridge. Without more details of the structure it would be useless to discuss further the supposed advantages of the design, as to which there is very likely to be some difference of opinion.


PROPOSED ST. LAWRENCE RIVER BRIDGE AT LACHINE, P. Q., ATLANTIC & NORTHWEST (CANADIAN PACIFIC) RAILWAY.
C. SHALER SMITH, *Consulting Engineer*, DOMINION BRIDGE COMPANY, JOB ABBOTT, *President*, *Contractors*.
ENLARGED VIEW OF CHANNEL SPANS, LACHINE BRIDGE.
ORDINARY SUMMER LEVEL 40.50
60 FT. CLEAR
A
B
R
F

The M'Keen Automatic Freight Car Coupler.

The accompanying cut represents a new car coupler, invented by Mr. T. L. M'Keen, which appears to be a great improvement over his earlier coupler shown at the trials at Buffalo held in September by the Executive Committee of the Master Car-Builders Association. Mr. M'Keen's coupler then met with the approval of the committee, and was one of those selected for further trial.*

Mr. M'Keen's coupler is of the loose link class, the pin being supported by a gravity dog. The link can be raised and lowered to suit different heights of cars, by means of a link controller which can be worked from the side of the car. The same lever operates the link controller and raises the pin, but the simple and ingenious arrangement of levers to effect this is not shown in the drawing.

In the coupler used at Buffalo, the pin was supported by a block kept forward by a spring. The entering link of another car forced the block back, thus permitting the pin to fall and effect coupling. The spring of course permitted the block to be forced back without injury. The spring, however, was somewhat liable to breakage.

The present improved form of coupler entirely dispenses with the spring. The device used for making the coupling automatic, and for supporting the pin ready to couple is simply a tumbler of a peculiar shape inserted in the draw-bar and operated by gravity. When the link is inserted this tumbler offers no resistance whatever. When in its place it is so overbalanced that it must fall to its position under the coupling pin when it is raised.

It cannot be injured or destroyed by the link; when it is pushed back from under the pin and the link strikes the rear part of its recess, the tumbler slides up in the draw-bar out of the way, nothing but its weight resting on the link, but as soon as the link is withdrawn, it drops down and forward.

The tumbler cannot be removed from the draw-head while the link controller bolt is in position.

The link controller has been improved by substituting two cams for a nail. The cams are put in so as to lift the link to its full height, yet must be driven back to their position by an incoming link, and yet cannot be injured.

The rods to control the link and pin are put on now so that the link can be guided, the pin drawn, and set not to couple from either side of the car without taking the hand off the handle. This arrangement is not, however, shown on the drawings, which represent the coupler only.

It will be noticed that the block or dog is of a peculiar form, the back being sloped so that when struck heavily by a long entering link, it can slide up out of the way and so mitigate the shock.

We understand that several cars equipped with Mr. M'Keen's latest device, as illustrated, are running on the Lehigh Valley Railroad.

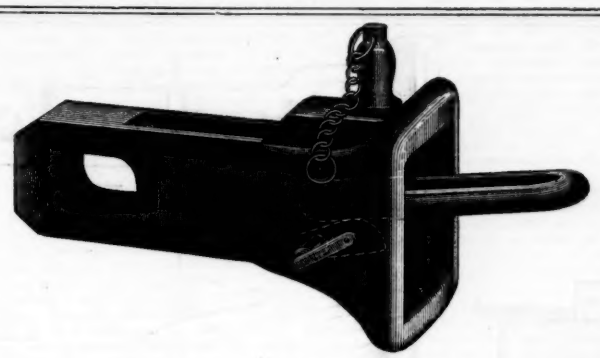


Fig. 1.—Link Raised to Couple.

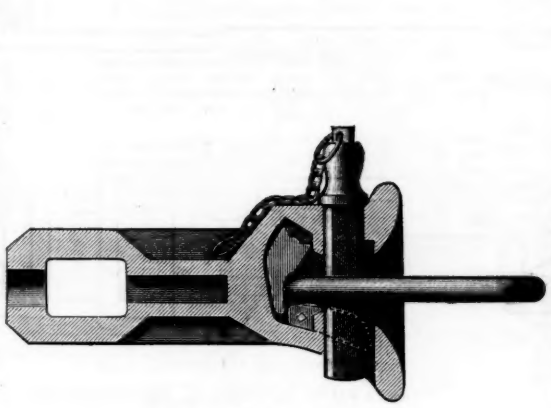


Fig. 2.—Link in Place.

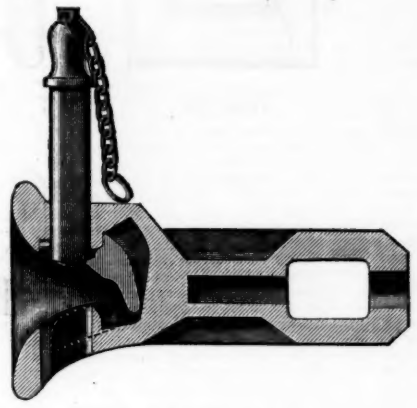


Fig. 3.—Set to Couple.

THE M'KEEN AUTOMATIC FREIGHT CAR COUPLER

The Massachusetts Commission on the West Deerfield Accident.

The report of the Massachusetts Railroad Commission on the accident by which a Fitchburg passenger train was wrecked near Bardwell's Ferry (or West Deerfield), on the afternoon of April 7 last, is as follows:

The investigation has been protracted in order to obtain the testimony of witnesses and the evidence afforded by excavation. In conducting it we have been aided by investigations made upon the spot and by the report of a very eminent civil engineer, who visited the scene of the disaster at our request, and who had the advantage of a former connection with the Troy & Greenfield Railroad.

Passenger train 35, leaving North Adams for Boston at 4:45 p. m., was made up as follows: Engine, tender, express and baggage car, postal and baggage car, Fitchburg smoking car, one Troy & Boston passenger coach, one Fitchburg passenger coach and one Wagner parlor car. When going up the grade at a point midway between Bardwell's Ferry and West Deerfield, a little before 6 p. m., at moderate speed, on the outward or southern track, the outer rail and a portion of the track gave way, wrecking the locomotive and throwing the cars down the embankment, which is here over 100 ft. high. Most of the trucks remained on the track. The cars, with the exception of the Troy & Boston coach, were destroyed by the shock or by fire, three of them being burned either by the breaking of their lamps or by the demolition of the stoves. Out of 48 persons on the train 47 were injured, of whom 11 were killed at once or have since died.

The road is owned and maintained by the state; and this portion of it is operated by the Fitchburg Railroad Co. A freight train, with 29 cars and an engine weighing 51 tons, ran over this part of the track a little before 4 o'clock. The state track-walker passed over the spot at 4.45 p. m. and removed some slight obstructions from the ditch. He saw nothing that conveyed any idea of danger. Other officials had inspected the road without observing any indications of trouble. Nor was there anything to warn the engineer of train 35 until he felt the track giving way beneath his locomotive. He at once reversed the engine to check the speed of his train.

The portion of the road-bed where the accident occurred is part of the original construction, a single track rebuilt about 19 years since, and it stands partly on solid rock, made by blasting a ledge, and partly on the embankment made outside of this ledge by dumping earth and fragments of rock. The cliff above the track is about 60 ft. high. The width of the road-bed is 31 ft., 9½ ft. being outside of the outer rail. The horizontal distance of the top of the bank from the river is 120 ft., the vertical hight being 101 ft., and the distance measured on the slope 175 ft. About two years ago a second track was laid inside the original track, on a new road-bed 12 ft. wide, made by blasting and cutting into the rock.

In general, this Board, when investigating an accident, does not consider the question of legal liability. But when accidents occur on the state road it is our duty, under the contract between the state and the operating company, to apply the rules of law to the facts and thus to decide the question between the parties to that contract as to which shall bear the loss. This question, however, does not arise until the accounts of the company are presented after the termination of the railroad year. It will then be decided upon the evidence now in possession of the Board and such further testimony as may be hereafter obtained.

The pressing question now is to learn the cause of the disaster, so that a repetition of like accidents may be prevented or rendered less disastrous. The attention of the Board has been directed to several points.

1. It has been suggested that more frequent patrolling would do much to insure safety. But it appears that the practice on the state road conforms in this respect to the usage on the best railroads. At all events this accident would not have been averted by any frequency of patrolling that has ever been practiced or suggested. A track-walker had visited the spot and given it special attention about an hour before the casualty occurred; and there is no reason to believe that his presence five minutes before the arrival of train 35 would have resulted in any good. It appears, also, that owing to the prevalence of wet weather the whole body of sectionmen and an extra force had been engaged for some time in watching all exposed points on the road, their special object being to look out for the sliding of earth or stones on to the track, and not for the sliding of the track itself.

2. The train was running at a moderate speed, and was not on a curve, but on a straight line, the tangent which includes the place where the accident occurred being 300 ft. in length.

3. Attention has also been directed to the fact that some of the cars were destroyed by fire. It is true that no passenger was burned to death, and only two persons suffered at all from fire. But the burning of three cars emphasizes the danger from this source, which has already been too well known from other railroad disasters. The law in regard to illuminating oil was complied with, and is always obeyed on this road, and, as we believe, on all the roads in the state. The statute forbids the use of naphtha or any compound of naphtha, or of any oil that will ignite at less than 300 degrees Fahrenheit. The heating apparatus in each car was provided with the approved safeguards against fire. But this accident shows, what common sense also shows that if fire is used at all in cars, such a disaster at this must be attended with peril from its use. In a slighs collision or derailment the ordinary safety devices are of great value, but when a car is hurled from the top of a rocky precipice, making five revolutions in its descent, as was the case here, these safeguards will fail. Railroad managers generally are not sufficiently acquainted with the use of steam for heating cars to warrant a recommendation of its adoption in this state. The present law assumes that fire will be used. On some well-managed roads in other states steam from the locomotive boiler has been used with success for heating cars. Our railroad men fear new dangers as well as inconvenience from the adoption of this device. The subject deserves careful attention; and it may be that improved devices will remove some of the objections that now exist to this method of warming cars.

4. The cause of the disaster was a slide of part of the embankment. And the cause of this slide was the concurrence of three faults in construction. (1) In 1866-8, when this portion of the road was reconstructed over the very imperfect road-bed of Messrs. Haupt & Co., a piece of crib-work was placed in the embankment occupying a considerable space midway between the track and the river. This was made of rough timbers fastened together by wooden pins, "battered" against the slope of a steep ledge, and filled with broken rock. It probably occupied a ravine in the mountain side, and was intended to retain the filling. This crib-work was afterward covered with earth and rock so that its presence was unknown to the present managers of the road. The contractor had forgotten it, and denied that there was any such work on the road, but after the accident the projecting ends of timber revealed its existence, and excavation has shown its extent and character. The pins have rotted away, and the timber has greatly decayed. Its appearance is that of wood that has long been inclosed in moist earth, and much of the time in earth saturated with water. The period when this structure was placed in the embankment was fixed by a witness who heard his father bargain with a contractor for the hemlock-trees of which it was in part made, and who had often seen it and climbed over it. The exact period when it was first covered with earth and rock cannot be ascertained. But it was before the road came into the hands of the present manager, and he never had any reason to suspect that this mode of construction had been used.

(2) When the railroad track was "renovated" in 1874-5, the plan called for an open culvert, by which the water accumulating in the ditch on the northerly side of the track at this place would be drained into the river. Twelve hundred feet of ditch now lie directly west of the place of the accident, and 90 ft. lie directly against it. The proposed culvert would have secured very thorough cross-drainage at this very point. It was thought desirable by the engineers in charge of the work, but was abandoned as unnecessary, or, as it is supposed, because of "insufficient appropriations and the impatience of the people with the great and seemingly never-ending expenditures." In the absence of such a culvert the melting snow or rain, and the water dripping from the cliff above the track constantly collected in the ditch and instead of flowing through it percolated through the embankment, probably finding its way between the sloping ledge and the rotting crib-work which rested on it, until the time came for the slide. A heavy rain had fallen the day before—not enough to cause a wash-out or to flow over the face of the track, but enough to lubricate the slope on which the crib-work had once been placed. The flow of water was somewhat increased by cutting into the rock when the second track was laid. It is evident to the sight that water does not flow through the embankment at this place.

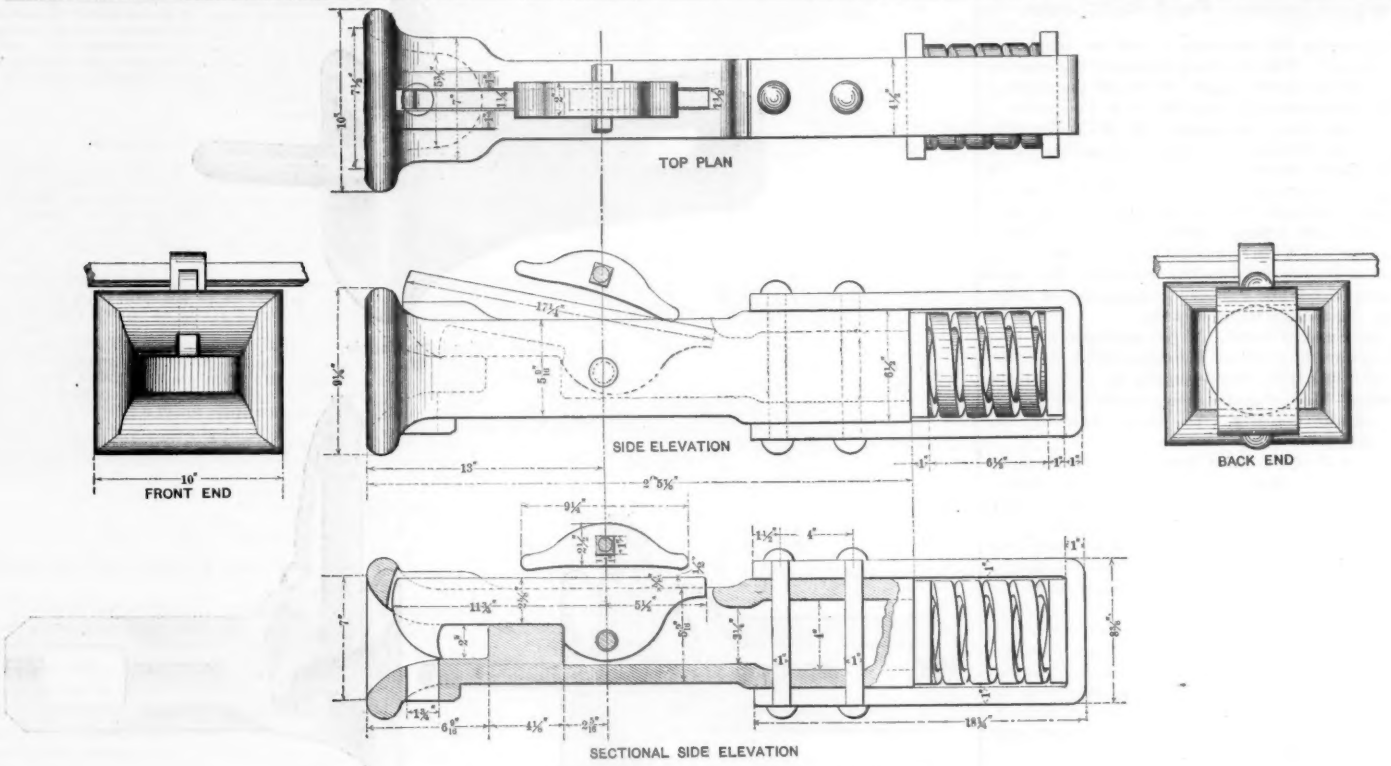
It should be said in justice to the present state Manager that the ditches on the road are remarkably good. As one proof of this it happened at the last official inspection by this Board that three experts who accompanied the Commissioners, expressed their admiration of the drainage; and one of them referring to the ditches, volunteered the remark: "We seem to have got home to the Pennsylvania Railroad." Those who know that road, and who know the estimation in which it is held by its "people," will appreciate the compliment. But drainage which is sufficient to protect a well built embankment will not serve for one that holds such a source of danger as was hidden at this spot.

(3) When the second track was added to the road in 1884, much of the broken rock was dumped on the southern slope of the embankment, with the idea of widening and strengthening it, and to dispose of the material. Such of the rock as reached the foot would aid in sustaining the bank, but that which remained high and over the weak spot would, by its weight, become a source of danger, and co-operate with the water in producing the final disaster. The three causes together were needed to produce the sad result, and together they abundantly account for it. Once more it should be remembered that what would have been proper on a well-made embankment only became dangerous upon one that contained a concealed defect. It is hardly necessary to say that the state manager is not only giving careful attention to this spot, but that as soon as possible every weak or suspected place upon the road will be examined and made secure.

5. There is no evidence or suggestion of any fault of negligence or otherwise on the part of the Fitchburg Railroad Co. or of any one in its service. Those engaged in operating this train were men of experience, fidelity and skill. No blame could be attributed to any one of them; and after the accident everything possible was done by the representatives of the railroad and the state to render service to the injured. Herbert P. Littlejohn, the engineer of the wrecked train, although wounded, bruised and fatally scalded, crawled up the steep bank and walked half a mile toward Bardwell's, that he might flag any approaching train and avert a new disaster. He died on the following day. Such heroism as his deserves generous recognition. Charles Richardson, the fireman, showed similar devotion. After aiding his associate, he with the blood streaming from his head and face, walked on the track to West Deerfield in order to warn approaching trains and to summon help. Conductor Foster, in spite of his wounds and burns, saved at least one life—that of a woman who was in danger of drowning in the river.

6. The death of Mr. Littlejohn resulted from his inhaling scalding steam, and calls attention to the necessity for precautions against this source of danger. Safety-valves have been devised which prevent the escape of steam or hot water in cases of accident, and thus to some extent insure locomotive engineers and firemen, as well as passengers, against this peril. Casualties of this kind are of frequent occurrence. Mr. Forney, in a paper on attachments to boilers, read before the Master Mechanics' Association in 1881, refers to six accidents which happened within a year and a half, and in which 79 persons were killed and 83 injured by scalding. The Board

* The M'Keen coupler in the form tried at Buffalo is illustrated on page 616 of the *Railroad Gazette* of Sept. 25, 1885. Further detailed illustrations and description appear on page 626 of the *Railroad Gazette*, Oct. 2, 1885.



THE AIKMAN AUTOMATIC CAR COUPLER.

earnestly recommends that all railroad managers consider the adoption of some device that will shield a deserving class of men from a terrible form of danger, and which in many accidents will protect passengers also against exposure to a most painful form of death.

The Aikman Automatic Car Coupler.

The accompanying illustrations represent one of the couplers selected by the Railroad Commissioners of the state of Michigan for use in that state.

It will be seen from the engravings that the coupler is of the loose link class, the coupling being effected by a vertical gravity hook engaging the link.

The draw bar much resembles a common draw-head slotted at the top and having a gravity hook inserted. This hook rotates round a horizontal transverse pin in the line of draught. The strain, however, it is claimed, falls on a lug cast in the draw-bar, thus relieving the pin.

The cars are uncoupled and the hook raised by a sort of cam on a square shaft. The handle working this shaft can be locked in position, when it it is desired to set the coupling not to couple. The hook can be locked down by the same process in order to prevent the cars coming uncoupled.

This coupler, which is of very recent invention, is, we understand, being tried on the Detroit, Grand Haven & Milwaukee Railway. Any further particulars may be obtained of the Aikman Automatic Car Coupler Co., of Detroit, Michigan.

The Barnes No. 3 Automatic Car Coupler.

The accompanying illustrations represent a car coupler recently invented by Mr. Lucien Barnes and Mr. Charles O. Barnes, of Syracuse, N. Y. A coupler of a very different type, the invention of Mr. Barnes, was tried at Buffalo last year, and was then illustrated in our pages.*

The present coupler, known as "Barnes No. 3," couples in a vertical plane by means of a knuckle rotating round a pin in the head of the coupler. In this it resembles the Janney, Thurmond, Hien, and Loraine couplers. The Barnes, however, differs from all of these couplers in two important particulars, the method of locking the knuckle, and the method used to set the coupler ready to couple. It is almost needless to add that several minor points of difference exist.

In the Barnes coupler the knuckle is locked by means of a piece swinging round a pin placed in the right side of the head of the coupler, the knuckle pin being placed on the left-hand side. This locking piece rises as it swings round, and, consequently, has a natural tendency to swing forward and lock the tail end of the knuckle.

The knuckle, however, is similarly hinged, that is to say, as it swings back its lower edge rests on inclined planes, which compel the whole knuckle to rise. When, therefore, the lock is released, the knuckle by gravity swings open ready to couple. In this respect it differs from other couplers of the vertical plane type, in some of which the knuckle requires to be swung open by hand to be set to couple, and in others the knuckle is made to fly open by a spring. The latter arrangement seems open to the objection that the spring for opening may act more quickly than the gravity lock, and hence the knuckle may open again with the rebound of the cars before the slower action of gravity has effected the locking. In the Barnes coupler the knuckle is both opened and locked by gravity, and this objection does not seem to apply.

The locking piece can be swung back and raised by a chain attached to the back of the locking piece. Directly the chain is raised the knuckle swings open and the cars are uncoupled. If it is desired to set the cars not to couple, the lever moving the locking piece is simply left hooked up. If on the other hand the locking piece is raised and the lever let fall immediately, the knuckle will open and the locking piece fall behind it, ready to lock the knuckle in a coupled position whenever the knuckle is forced back. When the cars are brought together again, the knuckle is driven back and its tail end striking the locking piece, the latter rises and falls again immediately. The locking piece is so arranged that if the cars are run together on a curve the knuckle, which is not then forced completely back, is retained by a small projecting piece on the locking piece which engages in a sort of step or recess on the tail end of the knuckle, clearly shown on Fig. 2. This is sufficient to lock the knuckle, the bearing surface in contact being 1⅛ in. wide, but the coupling face of the knuckle is not quite at right angles to the line of draft. When, however, the cars move on to a piece of tangent, the knuckle is forced completely back, slightly raising the lock again; the lock then falls again and locks the knuckle completely.

In the accompanying illustrations, fig. 1 is a plan of the coupler, part of which is broken away to show the manner in which the locking piece engages the tail end of the knuckle. Fig. 2 is a view of the knuckle, the tail end being nearest the spectator. Fig. 3 is a front view showing the mouth of the coupler, the knuckle being removed. The inclined planes up which the knuckle rises in swinging are very clearly shown. Fig. 4 is a front view, with the knuckle in position.

The weight of a 28-in. draw-head of malleable iron is about 150 lbs., but of course smaller sizes would weigh less. The large pin in the knuckle is 1½ in. diameter. The small pin in the lock is ⅝ in. diameter, and has little work to do, the locking piece simply riding up and down on it and the locking piece butting again the shell of the draw-head. The knuckle drops ⅝ in. in opening, and in locking is raised ⅝ in.

When coupled, there is about 1 in. slack between the knuckles.

When set not to couple, and two cars are run together, they do not meet knuckle to knuckle, as in some vertical plane couplers. Both knuckles standing open, the knuckle on one car bears against the face of draw-head of the other car, the position of the two knuckles and draw-heads being the same as if coupled. As, however, the locking piece in one or both of the cars is raised, the car will not couple.

It will be noticed that the coupler is of remarkably simple construction, consisting of three pieces which can be used straight from the foundry: the draw-head, the knuckle and the locking piece; and two pins, the knuckle pin and the locking piece pin. No springs are used.

This coupler is to be fitted to some cars on the Delaware & Hudson lines, and has attracted much attention from all those who have seen it. Its performances in actual service will be awaited with much interest.

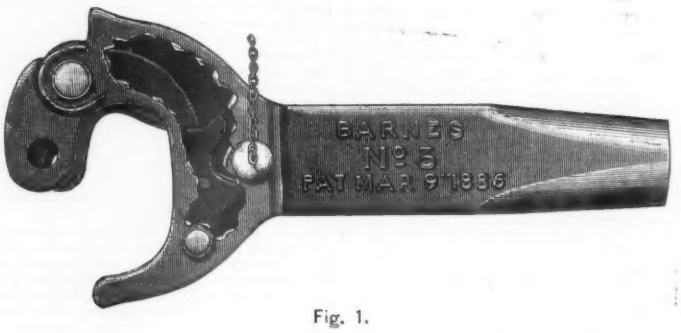


Fig. 1.

THE BARNES NO. 3 AUTOMATIC CAR COUPLER.

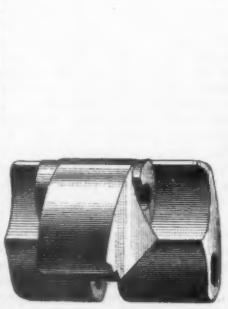


Fig. 2.

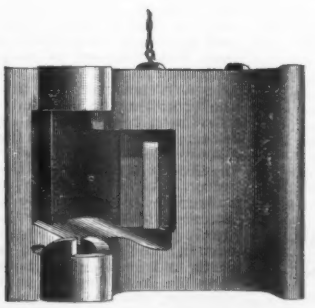


Fig. 3.

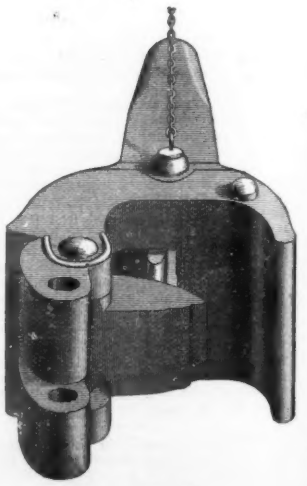


Fig. 4.

* See the *Railroad Gazette*, Sept. 25, 1886.

Contributions.

The Computation of Earthwork.

TO THE EDITOR OF THE RAILROAD GAZETTE:

Probably no one item of engineering has caused more annoyance to the "young engineer" than the prismoidal formula, with its ghastly middle area, which no engineering work has yet thoroughly discussed. Apparently no writer of prominence is willing to put himself on record as advocating its rejection, and it is given by one writer after another as "the only correct method," with little or no statement showing how impracticable it is to determine a correct middle area except in the simplest cases. The writer, many years ago, had considerable correspondence with Mr. John C. Trautwine on this subject, the latter finally stating that in many cases it could not be applied in actual practice. The following points are worthy of note in connection with it as contrasted with the method by averaging end-areas:

1. With irregular cross sections showing a large number of prominences and depressions, it is difficult to ascertain by what longitudinal ridge and valley lines these points are connected, so as to permit a middle area to be determined. In many cases such longitudinal lines develop entirely outside (laterally) of the prominences and depressions of the next cross section.

2. The only case in which the prismoidal formula is capable of ready application is with simple centre and side slopes in each end-area; and in such case a correction can be more quickly made by deduction of a sixth of the pyramids caused by differences of heights and of distances out.

3. The method of reducing complicated areas to the above simple form by using a thread on the plotted cross-section is merely an approximation by eye, and unsatisfactory where the object sought, as in the prismoidal formula, is mathematical correctness.

4. The prismoidal formula does not reach errors due to curvature of centre line much more closely than does the method by averaging end areas. Such errors are often much greater than are the pyramidal errors which the prismoidal formula is intended to correct.

5. The excess of quantities shown by the averaging method is nearly always counterbalanced in whole or part by the rounding of the natural surface, which is not reached by any of the methods of calculation. The natural surface is generally convex in cuts and concave in fills. A series of examinations will show that a slight ordinate of surface between sections will usually develop quantities more than counterbalancing the pyramidal excesses.

6. Since the method of averaging end-areas has been customary in constructions for so many years, it is a question whether it is not valid in law, as with other customs of measurement.

7. Rates of past cost of doing work and bids for new work being based on past amounts as developed by the averaging method, may perhaps justly call for continued use of this method.

8. Where only a part of the cross-section is completed each month, the work of hunting up subordinate middle areas and keeping all the various monthly results correct and intelligible develops into a tremendous and impracticable undertaking.

The "mean proportional" method is in general much more correct than the averaging of end-areas; but there are forms of sections where this cannot be said. It is largely used on public works. It is open, however, to nearly all the preceding objections.

A solution of the difficulty will be found in taking one or more intermediate cross-sections at the places where changes of ground distinctly call for sections, and sufficiently often to reduce to an insignificant figure the various errors from pyramidal excess, from curvature and from curving surfaces. All of these cross-sections need not be used in each monthly estimate, where the work does not show completed sections; but a line can be drawn below the upper irregularities of surface, and the simpler section below used for a time, after calculation of cubic yards above such lines. For the final estimate, of course, all the sections should be used, and care should be taken not to let the pyramidal error, or error from curvature, become too great in the temporary calculations.

Some special examination of error from curvature will occasionally be required on steep side hills with sharp curves in alignment, whatever method may be used.

ARCH. A. SCHENCK.

The Late G. A. Nicolls.

Mr. G. A. Nicolls, one of the oldest officers of the Philadelphia & Reading road, died at his residence in Reading, Pa., May 18, aged 69 years. We take the following account of his life from the Reading *Journal:*

The deceased, Gustavus A. Nicolls, was born at Abbey View, Kilkenny County, Ireland, April 3, 1817. He was the son of Col. William Darm Nicolls, of the English Royal Artillery. His mother was Maria Graves, daughter of Anthony Graves, a land proprietor in Kilkenny. He was sent to classical schools, and at 18 years of age finished his education at Wanstead Military College, near London, England. After completing his education it was intended that he should be sent to the East Indies and placed upon the staff of his uncle, Sir Jasper Nicolls, but he gave up that plan and decided to seek his fortune in the United States. He came to Philadelphia in 1834 and studied law there for a time, and in April, 1835, he received the appointment of rodman in the engineer corps of Moncure Robinson, the Chief Engineer of the Philadelphia & Reading. In 1836 he became Assistant Engineer. The office of the corps was at Pottstown for some time, and in 1837 it was removed to Reading. Here the members, including Mr. Nicolls, boarded at Herr's, now the United States Hotel, Penn, between 4th and 5th. Moncure Robinson was the first Chief Engineer, and he was succeeded by Wirt Robinson, who married a daughter of Geo. DeB. Keim, and became the first Manager of the road when it was opened.

When the road was opened, Mr. Nicolls was appointed Superintendent of Transportation, which position he held some 10 years, when he became the Engineer and Superintendent. Jan. 1, 1857, Mr. Nicolls' position was changed to General Superintendent, which he held until 1871, when he was elected a Second Vice-President of the railroad company, removed to Philadelphia, and John E. Wootten was appointed Assistant Superintendent. A few years thereafter, in 1876, Mr. Nicolls was elected President of the East Pennsylvania and the Reading & Columbia railroads, when he returned to Reading, and had his office on the second floor of the passenger depot. He was also a director in a number of the branch railroads controlled by the Philadelphia & Reading Railroad Co. It will thus be seen that Mr. Nicolls held prominent positions in the company from the first operation of the road, the building of which was commenced in 1835. It was among the first railroads built in the United States. The tracks were laid from Reading southward. The first train was run from Reading to Pottstown, in May, 1838—48 years ago. The road was opened to Norristown in July, 1838, to Philadelphia in December, 1839, and to Pottsville, Jan. 10, 1842.

When Superintendent of Transportation Mr. Nicolls took all the precaution possible to prevent accidents. Before the erection of the telegraph line along the road in sending out trains he gave very particular directions and repeated his orders verbally until the conductors replied that they understood his instructions perfectly. He was instrumental in having the signal towers erected along the road as a guard against accidents. If any of the employés had any grievances he heard them patiently and did the best he possibly could for them

Mr. Nicolls was a public-spirited citizen, and took a deep interest in benevolent and charitable institutions. He was one of the organizers of the Reading Dispensary Association, from which originated the Reading Hospital; was a member of the Reading Relief Society, a patron of the Reading Benevolent Society, and manifested great concern in the project of erecting the new Widows' Home at Sixteenth and Haak streets, having served as Chairman of the Advisory Committee. He was also a member of the Board of Trustees of the Charles Evans cemetery, a life member of the Berks County Agricultural Society and for many years a prominent member of Christ Episcopal congregation, serving as a member of the vestry. He was much interested in the success of the Reading Library, and in the operations of the Y. M. C. A. Every institution for the relief of suffering humanity and for the advancement of the race found in him a liberal patron.

About the year 1858 Mr. Nicolls visited the Island of Cuba, where he spent the greater portion of the winter of that year. During his stay there he sent a number of interesting letters to the *Berks and Schuylkill Journal*, which in their make-up showed the observing eye and the skilled hand. These letters were widely read and found their way into a number of the exchanges throughout the state. He subsequently visited Europe, in company with H. A. Muhlenberg, Esq. During the late civil war Mr. Nicolls enlisted as a private in one of the companies that left Reading during the "Emergency," which took place about the time of the battle of Antietam.

Deceased was twice married. His first wife was Miss Rosa Muhlenberg, daughter of Hon. Henry A. Muhlenberg, D. D., who was for many years pastor of Trinity Lutheran Church, subsequently member of Congress, and the first Minister to Austria. Some years after her death Mr. Nicolls married the widow of Hon. Henry A. Muhlenberg, Jr., who died in 1854, at Washington, of typhoid fever, while a member of Congress. She is the daughter of the late Dr. Muhlenberg, of Lancaster. With his first wife Mr. Nicolls had no children, but with his second wife one son, Frederick, who is about 16 years of age.

Freight Train Brakes.

The last meeting of the New England Railroad Club, May 12th, President Marden in the chair, was chiefly given up to discussion of the above subject. More than a hundred members were present.

Offers of transportation to the Master Car-Builders' Association Convention at Niagara Falls, in June, from the Lehigh Valley, the New York & New Haven, the Boston & Albany and the Hoosac Tunnel line were announced, and offers of a special car from the Wagner Sleeping Car Co. The thanks of the club were voted.

A letter as below was read by Mr. Adams from John S Gray, Vice-President of the American Brake Co., New York, and from S. N. Tallman, President of the Tallman Brake Co.; also a letter from H. Stanley Goodwin, General Superintendent of the Lehigh Valley road, all upon the subject of brakes.

Mr. W. W. Snow read a paper by George M. Sargent, of the Congdon Brake & Shoe Co., Chicago. He urged that more care shall be taken in the mixture of iron and the construction of shoes, for it is a fact well known that a brake-shoe which is hard and brittle develops much less frictional resistance than one which is made of soft machine iron, the pressure on each being the same. Hence, it is difficult to obtain satisfactory service from wheels used under brake-shoes which are made without reference to uniformity.

The item of brake shoes in an extensive establishment, where large quantities of machine and other castings are made, is very insignificant. Inexperienced molders and boys are employed in their construction, and when the "heat" is "taken off," the iron in the latter part of that "heat" (the poorest iron) is run into brake-shoes, some few perhaps having been made from the soft iron left in the ladles after pouring machine molds. The cost of shoes thus made is included in the general foundry or casting account. The railroad company having no representative or special account with brake-shoes, as with oil, waste and other material of really less importance, is unable to easily or readily obtain correct reports of aggregate expense or even cost per thousand miles run; nor can any comparisons be had with previous service.

There may be exceptions as to this method of charging up brake-shoes, but the writer has yet to learn of a single railroad company which keeps a debit and credit account with this item of expenditure. Such accounts, if accurately kept, would place brake-shoes in a position on the company's books which they most certainly deserve, but the old adage "out of sight, out of mind," will be applicable until they are given a stand-point in the records of the companies, where the figures showing cost, service, etc., can be placed with other accounts in such a manner as to attract the attention of managers and others interested as to their importance.

Much has been said as to the effect of Congdon brake-shoes on steel-tired wheels. Without question steel-tired wheels have been injured by the use of shoes *called* Congdon shoes, but in every instance, so far as the writer has learned, such shoes were not made in accordance with the Congdon specifications. Great pains were taken in manufacturing the Congdon shoes, and the records amply showed that they in no case injured steel-tired wheels. It had been found that the wrought-iron pieces materially increase uniformity, by reason of the granular particles of cast iron which are dislodged by friction, conveyed by the action of the wheel to the fibrous wrought iron, partially imbedded therein, and by it held in suspension, forming a uniform frictional surface which is neither wrought iron nor cast, a surface which can in no other way be obtained, insuring a length of life for the shoe itself unequaled by any other, while it lessens very materially the sliding and consequent flattening of wheels, and increases rather than diminishes the longevity of steel tires.

The PRESIDENT announced the subject for discussion for the evening as follows:

"*Brakes.*—The material and construction of the shoe, methods of application, forms and proportions of levers, etc.; amount of pressure allowable per square inch of brake surface and per ton weight on wheel; advisability of braking on both sides of the wheels; effect of driver brakes on wheels; effect of power brakes on cars and wheels; desirability of continuous brakes, etc."

Mr. TURNER: For passenger trains the Westinghouse has proved a good brake, but I think there is some question if it is a perfect brake for freight trains. Notwithstanding that it has been considered a perfect brake for a number of years, it has transpired recently that it needed some improvements and alterations, which demonstrated that it was not perfect and it is a question whether it is yet. I was recently in Chicago, and I found that some of the western engineers and shippers of cattle were of opinion that the Westinghouse brake for stock trains, where it has been used the most, is not just what they want. They claim that it is too severe in its action, especially when the train brakes in two, and also that they cannot use it successfully on a large train.

In regard to another class of brakes known as the momentum brake, which has been pushed forward in an effort to introduce it in the freight-train service, I am inclined to think that the type is not adaptable to freight-train service. I believe with Mr. Tallman that a brake to be adapted to the freight-train service must be what would be termed a friction brake; it must wind up the chain. There are certain reasons why it is better to wind the chain and apply the power in that way than any other. The Westinghouse brake applies the power very quickly—so does the American brake—while the friction brake applies the power slowly. The brake I represent is a friction brake. We have demonstrated that we can handle a train with it perfectly, either on level or descending grades. The Westinghouse brake has met with a good deal of trouble in handling heavy trains down a long grade. We have also demonstrated that a power brake may be used so as to give no trouble in back switching, if properly manipulated. The expense of the brake is very light, and will not be in the way of its adoption, if it should prove to be a success in other respects. I have made three trips to Chicago with some of these brakes on the stock trains of the Boston & Albany road, and during those trips, while we have in some instances met with trouble owing to faulty construction, yet I have proven to my own satisfaction, and I believe to the satisfaction of all who know anything about it, that the fault has not been with the brake itself.

In regard to the details of this brake, we use ¼ in. draw-head motion, with friction power on the axle, the revolution of the axle winding up the brake chain. Our brake is applied at all times by the front draw-head; that is to say, the draw-head on the front end of the car, no matter which end may be the front, thereby obviating any trouble in starting the car.

Mr. L. GAREY: Some few years ago I thought I understood pretty well what the country wanted for a freight-train brake. I at first thought it was a friction brake of some kind, which would be independent on each car. Then I thought it must be a continuous brake; and so I have gone from one thing to another, until I don't know as much about the matter as I thought I did ten years ago. But one thing is very evident, and that is that we must have a brake for freight trains. I think statistics show that the freight to be moved by water and rail has doubled on the average every ten years during the past 30 years; and we may expect that during the next eight years the quantity of freight to be moved throughout the country will be doubled. What are we going to do with it? The roads are now mostly utilized to their full capacity, and in order to meet the demand we have doubled the capacity of our cars, and the locomotive is called upon to do about all we can naturally expect to get out of it at present, and we shall have to overcome the difficulty in some other way. If we could have our freight trains under the command of the engineer, fully and thoroughly, there would be no difficulty in increasing the speed of freight trains to 30 or 35 miles an hour. In order to do that, it is necessary to have a train brake equal to that increase of speed, and in that way we could nearly double the carrying capacity of our roads.

Now it is evident from past experience that when necessities arise, there is some genius who overcomes the difficulties; and I believe we shall soon see some effective brake, simple, not expensive, not liable to get out of order, and we shall have our freight flying through the country at the rate of 30 to 35 miles an hour. As to repairs of cars run at a high rate of speed, I can say that the repairs of freight cars per mile of service are not as much when run at 25 miles an hour as when run at 12 miles an hour. The most difficult problem now to solve is to know how to control our freight trains. My opinion is that a brake should be applied to every wheel on the car.

Mr. TALLMAN, in answer to request, explained the action of his brake, and asked with regard to the cost of maintaining cars which are run at the rate of 25 miles an hour as compared with those which are run at 12 miles an hour, what would be the difference in the quantity of coal consumed, between the fast and the slow trains, assuming the trains to be of the same length, with the same weight of cars.

Mr. LAUDER: I can give some information in regard to the coal consumption when increased speed is made with freight trains. Prof. Dudley made some experiments on the Lake Shore road some years ago, with a train of 25 or 30 cars of stone ballast. His tests covered, I think, several weeks, and his deductions were that the most economical speed as regards fuel was 20 miles per hour. He found the fuel consumed was less at 20 miles per hour than at 10 miles an hour; and when he went beyond 20 miles an hour the consumption increased rapidly, below that slowly, and that 20 miles an hour was the most economical speed for fuel consumption. This seems strange, but we must remember that in one case the engine is under steam twice as long as in the other case.

I have come to the conclusion that on freight trains power brakes are getting to be an actual necessity, and I agree with Mr. Garey that we have got to meet the increase of traffic with our present appliances, if possible. We cannot increase our track capacity without building another road. A third track would be of little use; we should have to put down the fourth if we went in that direction; that is, double our road and its maintainance. We have for some time been increasing the capacity of our cars, and the size and power of the engines, and now we must try to increase our speed; and there is no reason in the world why we should not increase the speed of our freight trains if we can stop them when we want to. About a year and a half ago we commenced running a freight train to New York, limited to 25 cars, with a

speed from 30 to 35 miles an hour—a train easily handled. We used on this train the Westinghouse automatic freight-train brake, and it has been on something over a year. We put from 8 to 12 of these cars next to the engine in these trains, and the train can be handled beautifully, making the stops as quick as necessary to make them. The brake works in all respects as complete as on any passenger train we have, and no repairs have been required.

Mr. TALLMAN: Nobody who knows anything about the Westinghouse brake will deny that it works well with a limited number of cars; but for general freight service on cars at points of interchange, like Albany, for instance, and on long trains, it would not be practicable. A train of 25 cars with eight or ten friction brakes could be easily handled; but if you have a train of 75 cars, made up from the cars of different roads, to get that brake so as to be of any service, you have got to switch those cars so as to get the right ones in front of the train; and the cost of switching would be enormous.

Mr. LAUDER: The Westinghouse brake is now in almost universal service on passenger trains, and it looks now as if it would come into universal use in Europe. It is used on some of the largest roads in this country, and if there were so many difficulties in the way of its practical working, it would seem as if it would not be so generally adopted. These difficulties are largely imaginary, and disappear as soon as the road takes hold of the brake and puts it into practical use. We have no difficulty in our road with it. We run light trains in order to run them rapidly, and our road has heavy grades, though short. There are difficulties in switching cars, but with a few cars next to the engine with this brake the train is easily managed; half-a-dozen cars will brake a train quicker than if there were a brakeman at every car, because this brake takes hold quick and strong. The first cost of the brake is of secondary importance; the main thing is to get a brake that is effective, and the one that is the most effective will be the one adopted.

Mr. L. GAREY: I was talking with Mr. Benjamin Welch, of the Central Pacific road, a few months ago in reference to the use of the Westinghouse automatic brake on freight trains, and he told me they had no trouble in using it. They could not dispense with it. Their heaviest grade is 116 ft. to the mile; they don't carry very heavy trains, and run very slow, and they have no difficulty in the use of a continuous brake; and I don't see why there should be here in the East in using the same device, except the trouble of switching the cars.

Mr. ADAMS: The Central Pacific road is somewhat peculiar. It has not a hundredth part of the variety of cars that run between here and Chicago or St. Louis. It is the end of a long line of railroad, is the other side of the mountains, has its own cars for its specific business; very few of the cars this side of the Rocky Mountains get over there, and it has not the mixed trains which we have on the eastern roads. I have seen trains on our road with not one Boston & Albany car in them, made up of cars from 30 or 40 different roads. In such trains the expense of switching would be immense. If everybody adopted the Westinghouse brake, of course this difficulty would disappear; but if we can get a momentum brake that will answer its purpose with the same efficiency as the Westinghouse brake, it seems to me we should not neglect such an opportunity to avail of it. I have no interest in anybody's brake, but it seems to me there is something else beside a continuous brake necessary for train service. I don't believe any of us will live long enough to see the Westinghouse brake adapted to general freight service, although it may may be put into special service, as in the case mentioned by Mr. Lauder, but not on trains made up as the trains of the New York Central and the Boston & Albany roads mostly are, of such a variety of cars from different places, stopping and switching out at so many points.

Mr. GAREY: The desirability of a momentum brake I admit. We all know that it is no difficult matter to run a train of cars between Boston and Chicago, but the trouble is in switching trains at interchanging points. I claim that there is five times as much switching done as there is any necessity for. If trains were made up to run solid between Chicago and Boston, New York or Albany, it would save expense in switching, and in wear and tear of cars; repairs would be reduced 50 to 75 per cent., and in running solid trains there would be no difficulty in keeping a few cars next the engine to brake the train. At the same time, if we can get a momentum brake, which I hope we may, it might be better than the Westinghouse.

Mr. GUERNSEY: A locomotive brake is to be estimated according to its duty and its power. There is no driver-brake that does anything like the amount of work in this way that the Beals driver-brake does. I want you to examine an engine that I shall have at the June meeting, fitted with this brake, which never has had a cent laid out on it. The brakes are applied as squeezers on each side of the wheel, no brake shoes between the wheels. It has been adopted by the Ontario road and in use for two or three years. It will hold any train, and the tires on the locomotives which I propose to have here are in better shape than many that have been used for only six months. Cast-iron shoes are used; wrought-iron shoes are as bad as wrough-iron rails. The brake is so constructed that you can make it yourself cheaper than you can buy it. You can make it and put it on at an expense of about $100 an engine, ready for use, about half what you have to pay for any other brake in the market. If you call for a momentum brake, and will give the inventor a chance to test it with a train of 50 cars, and to experiment with it, you will get it.

Mr. MARDEN: I believe that all our trains should be held in control by the engineer, whatever brake may be used. I see no difficulty in using a continuous brake, and thoroughly believe in it; and if the Westinghouse brake were applied to freight trains I believe the difficulties spoken of with regard to switching and the other troubles would be found to be imaginary as it came into general use. Where it is now used it does its work well, and the sooner our freight trains are equipped with such a brake the quicker our expenses will lessen. I also believe in running our freight trains at high speed and with light loads. Twenty tons is more than they ought to carry; 15 tons is enough.

Mr. S. P. TALLMAN, in the letter above referred to, favored braking on both sides of the wheel, and thought driver brakes an advantage to the tire. He explained at some length the advantage of having a buffer brake simply press a friction wheel against the axle, instead of attempting to apply brakes directly.

Gen. JOHN B. GRAY, of the American Brake Co., said in his letter that the St. Louis & San Francisco had now 2,000 cars in service fitted with this brake and the Wabash and other roads an aggregate of over 1,000. He described the tour made by a train of 17 cars last year, which traveled some 4,000 miles in all, exhibiting the brake, and gave voluminous tables of performances, many of which have already been printed in these columns. The instruments used in the tests were mechanically and mathematically correct, and had been adopted with some improvement for use at the forthcoming Master Car-Builders' tests, where his company would be represented with 50 cars. Repairs so far had been less than 66 cents per car per annum, including all contingencies. His company was therefore ready to guarantee that the cost would not exceed $1 per annum. The uniform price was $15 per car, f. o. b. at St. Louis. Nearly all parts were of malleable iron.

A table showing some tests of the Tallman brake has already appeared in the *Railroad Gazette*.

TECHNICAL.

Locomotive Building.

The Baldwin Locomotive Works in Philadelphia are building 10 engines for the Gulf, Colorado & Santa Fe road.

A dispatch from Schenectady, N. Y., May 26, says: "A judgment dissolving the corporation of the McQueen Locomotive Works was entered at the County Clerk's office today, on the ground that the company has not paid in its stock and has not carried on the business for which it was incorporated. The motion for dissolution was granted to Attorney-General O'Brien for the people by Judge Fish. At the request of the counsel of both sides, John A. De Remer, Secretary of the corporation, was appointed Receiver, bonds being placed at $20,000. An inventory will be taken as soon as possible, and the property will be sold at auction." The company was organized some time ago, but has never built any locomotives.

The Car Shops.

The Dickson Manufacturing Co. in Scranton, Pa., has recently shipped 8 sets of the Dickson car wheels for the Erie; wheels for 15 passenger cars for the Delaware & Hudson Canal Co., and several sets for the Philadelphia & Reading and the Fitchburg roads. The demand for this wheel is increasing so fast that an enlargement of the plant for making them will soon be necessary.

The Pullman Palace Car Co. has just turned out from the Pullman shops for the Rock Island road four new sleepers, named the "Singapore," "Penang," "Yeddo," and "Yokohama," in each of which all of the latest improvements are included. Among these may be mentioned a complete buffet, an annex to the drawing room, the new style of high-back seats, improvements in the ladies' and gentlemen's lavatories and dressing rooms, as well as a vast improvement in the interior arrangement of the smoking-room, consisting in the removal of the upper berth and so arranging the back of the long seat or lounge then when occasion demands it can be made into an upper berth. The smoking-room is finished in a very beautiful, highly polished, dark-colored, imported oak and embossed leather. The body of the car is finished in mahogany, with very delicate marquetry. A feature of this l• tion of the car is the beveled-edge pier glasses at each end of the car. For the benefit of ladies traveling alone a new feature has been added in the sl a :e of additional curtains, suspended from the base of the upper berth, thus completing the privacy of the lower berth when made up, and when the occupant of the upper berth is retiring or rising. The car stands on 12 paper wheels, 42 in. diameter. Another interesting feature, and one that is wholly new, is the little recess or dressing apartment connected with the drawing-room and divided from the room proper by a curtain. Besides this, there is a window that can only be opened from the inside of the drawing-room and looking out upon the rear of the car, so that when necessary a better ventilation will be secured. These cars, which were built at a cost of $16,000 each, present the best improvements that the company has made of late years, some of which have never before been introduced. They will run on the Rock Island road, between Chicago and Kansas City.—*Chicago Inter-Ocean.*

Bridge Notes.

The new bridge just finished over the Harlem River in New York for the Suburban Rapid Transit road and all the elevated structure of that road is painted with paint furnished by the National Paint Works at Williamsport, Pa. The same company also furnished the paint for the great bridge over the Susquehanna River on the Baltimore & Ohio's new line to Philadelphia.

Several large bridge contracts will be given out before long, including the bridge over the Missouri on the Chicago, Milwaukee & St. Paul's extension to Kansas City; the Illinois Central's bridge over the Ohio at Cairo and the bridge over the Mississippi at Memphis for the Kansas City, Springfield & Memphis road.

Iron and Steel.

Swift's Iron & Steel Works have added to the equipment of the Covington (Ky.) mill two sheet trains with all the latest improvements.

The Receiver of Brown, Bonnell & Co., at Youngstown, Pa., has been authorized by the Court to contract with the Ohio Gas Fuel Co. for a supply of natural gas sufficient to run the works. The contract is for three years.

Moorhead, Brother & Co. have their Vesuvius Mill at Sharpsburg, Pa., busy on a large order for steel plates for a steamboat which the Pusey & Jones Co. is building at Wilmington, Del., to go to South America.

Mr. J. P. Witherow, in Pittsburgh, has contracted to furnish the Spang Steel & Iron Co. with a Clapp-Griffiths steel plant, with two converters.

Manufacturing and Business.

The Standard Underground Cable Co. at its annual meeting in Pittsburgh, May 22, elected the following directors: George Westinghouse, Jr., of the Westinghouse Air Brake Co.; C. H. Jackson, of the Union Switch & Signal Co.; Robert Pitcairn, Pennsylvania Railroad; John H. Dalzell, of the Chartiers Valley Gas Co.; M. W. Watson, President of the Exchange National Bank, of Pittsburgh; O. T. Waring, of the Standard Oil Co.; Richard S. Waring, Vice-President of the company.

Messrs. J. R. Peacock & Son have removed their offices to Room 53 Bryant Building, No. 55 Liberty street, New York City.

Mr. Benjamin A. Clooney, of the firm of Andrews & Clooney, proprietors of the Globe Iron & Columbia Car Spring Works, died in New York, May 14, as noted elsewhere. The business of the late firm will be continued by Mr. F. H. Andrews, the surviving partner.

The Muller Machine Tool Co. has been recently organized by Messrs. Augustus, E. A. & F. W. Muller, for the purpose of building iron working machinery of the best class. The works of the company are at No. 182 West Pearl street, Cincinnati, O., and are well equipped with the best machinery. The company has just completed a 16-in. engine lathe with some new improvements.

The Rail Market.

Steel Rails.—Quotations are firm at $34.50@$35 per ton at eastern mills, with several large orders reported placed. Since the break in prices in England there have been reports of rails to be imported, and it is said that several English makers have sent over agents to solicit orders.

Rail Fastenings.—Spikes are quoted at 2.25@2.40 cents per pound in Pittsburgh; track-bolts 2.75@3, and splice-bars 1.65@1.80 cents.

Old Rails.—Old iron rails are in light demand, with small sales and quotations nominal at $19@$21 per ton at tide-water. Old steel rails are quoted at $21@$22 per ton in Pittsburgh.

Steel Rail Contracts.

The Union Pacific Co. will receive bids up to June 10 next for 6,000 tons of steel rails, to be delivered at Omaha, Neb., in August and September. Bids should be addressed to Mr. J. J. Burns, General Storekeeper, at Omaha.

The Atchison, Topeka & Santa Fe contract for 25,000 tons of steel rails has not yet been awarded, although the bids are all in. This contract is for next winter's delivery.

It is reported in New York that freight has been engaged in Liverpool for 7,000 tons of steel rails to go to Galveston, Tex. The report does not mention the road for which the rails are intended.

American Institute of Mining Engineers.

The spring meeting of the American Institute of Mining Engineers was held at the Sun Hotel, in Bethlehem, Pa., beginning May 18. The Institute was welcomed to the town by Chief Burgess, George H. Myers, and response was made by President Richards. President Richards then delivered his inaugural address, the subject of which was mining schools, their necessity and their proper method of instruction.

Several papers by members were then read by title, having been previously distributed, and were discussed at some length. A number of mining safety lamps were exhibited.

The following day the members visited the works of the Bethlehem Iron Co. and of the Lehigh Zinc & Iron Co., and in the afternoon another session was held for business.

On the third day the programme was fully carried out, a visit being paid to a number of mines and industrial establishments, while the business of reading and discussion of papers was not neglected. The meeting was largely attended and was most pleasant and profitable to the members present.

ANNUAL REPORTS.

The following is an index to the annual reports of railroad companies which have been reviewed in previous numbers of the current volume of the *Railroad Gazette:*

	Page.		Page.
Atchison, Top & Santa Fe	292	Michigan Central	23, 344
B. & O. Employes' Relief Ass'n	345	Mil., L. Shore & Western	191
Baltimore & Philadelphia	15	Mississippi & Tennessee	120
Boston & Lowell	15	Natchez, Jackson & Col.	104
Boston & Maine	23	Naugatuck	26
Boston & Providence	15	New Haven & Northampton	208
Buffalo, N. Y. & Philadelphia	16	New London Northern	120
Canadian Gov't Railroads	272	N. Y. & New England	16
Carolina Central	360	N. Y., N. Haven & Hartford	24
Charlotte, Col. & Augusta	155	N. Y., Ontario & Western	86
Chesapeake & Ohio	240	N. Y., Providence & Boston	25
Cheshire	104	N. Y. Railroad Commission	33
Chicago & Alton	176	N. Y., Susquehanna & Wes'rn	139
Chi., Burlington & Quincy	292, 308	N. Y., West Shore & Buffalo	58
Chi. & Grand Trunk	324	Norfolk & Western	104
Chi., Milwaukee & St. P	208, 324	Northern Central	156
Chi., St. P., Minn. & Omaha	246	Norwich & Worcester	120
Chi., St. L. & Pittsburgh	324	Northeastern (South Carolina)	16
Cin., N. Orleans & Tex. Pacific	140	Ohio & Mississippi	174
Cin. & Springfield	208	Panama	307
Cleveland & Canton	192	Pennsylvania & New York	224
Cleve., Col., Cin & Ind.	208	Pennsylvania Railroad	173
Columbia & Greenville	171	Peoria, Decatur & Evansville	192
Col., Hocking Vy. & Tol.	192, 360	Philadelphia & Reading	48
Connecticut River	85	Phila., Wil. & Baltimore	307
Consolidation Coal Co.	139	Pittsburgh & Lake Erie	68
Cumberland Valley	307	Pittsburgh Junction	85
Del. & Hudson Canal Co	256	Pitts., McK. & Youghiogheny	68
Del., Lacka. & Western	104, 155	Portland & Ogdensburg	120
Denver & Rio Grande	139	Providence & Worcester	120
Des Moines & Fort Dodge	291	Richmond & Alleghany	86
Detroit, Lansing & No	323	Richmond & Danville	85
Detroit, Gd. Haven & Mil.	324	Richmond, Fred. & Potomac	86
Dublin & Wrightsville	255	Rochester & Pittsburgh	86
Fitchburg	68	Rome, Wat. & Ogdensburg	85
Fort Wayne, Cin. & Louisv	307	St. L. & San Francisco	192, 343, 360
Georgia Pacific	272	St. L., Van. & Terre Haute	292
Grand Trunk	324	St. Paul & Duluth	155
Housatonic	192	Savannah, Fla. & Western	344
Houston & Texas Central	272	South Carolina	208, 308
Huntingdon & Broad Top Mt.	120	Troy & Greenfield	228
Illinois Central	174	Union Pacific	240
Indianapolis & St. Louis	208	Utica & Black River	272
Kansas City Union Depot Co.	256	Virginia Midland	139
Lake Shore & Mich. So.	23, 344	Western Maryland	139
Lehigh Coal & Navigation Co.	140	Western North Carolina	192
Lehigh Valley	68, 244	Wilmington, Col. & Augusta	104
Leh. & Wilkes-Barre Coal Co.	139	Wilmington & Weldon	104
Louisville, N. Albany & Chi.	255	Worcester, Nashua & Roch.	191
Maine Central	68	Wrightsville & Tennille	256

Missouri Pacific.

At the close of the fiscal year, Dec. 31, 1885, this company worked the following lines held either by ownership or lease:

	Main track.	Sidings.
Missouri Pacific	905	234
Central Branch, Union Pacific	388	44
Missouri, Kansas & Texas	1,386	147
International & Great Northern	775	82
Galveston, Houston & Henderson	50	21
St. Louis, Iron Mountain & Southern	923	221
Sedalia, Warsaw & Southern	42	....
Total Missouri Pacific system	4,559	749

"The accounts of the Sedalia, Warsaw & Southern Railway (narrow gauge, 42 miles in length) were placed in charge of the General Auditor of the Missouri Pacific Co. April 1, 1885, and the operations of that property for the year are included in this report.

"The Texas & Pacific Railway, which was operated in close working relations with the Missouri Pacific, and to some extent under the same executive officers, from September, 1881, until Dec. 16, 1885, was on the latter date placed in the hands of receivers, appointed by the United States Circuit Court at New Orleans; a statement of its operations prior to the receivership has been made to the directors of the Texas & Pacific Co., and is not, therefore, included in this report."

The equipment of the roads worked is as follows:

	Locomotives.	Pass. train cars.	Freight cars.	Service cars
Mo. Pacific	76	115	6,185	29
Central Br.	35	23	558	8
Mo., Kan. & Tex	155	89	4,143	15
Int. & Gt. No	74	54	1,399	45
Galveston, H. & H.	15	17	146	20
Texas & Pacific	....	....	....	....
St. L. I. M. & So	144	97	4,368	28
Sedalia, War. & So.	2	1	42	1
Total	601	396	16,843	146

The company also owns five steam ferry-boats in use transferring cars at Carondelet, Cairo, Belmont and New Orleans.

The general account, condensed, is as follows:

Capital stock		$29,974,800
Funded debt		30,000,000
Sundry accounts and balances		2,650,699
Income account, balance		4,793,296
Total		$67,418,795
Road and equipment	$41,633,992	
Investments in stocks and bonds	22,650,933	
Materials on hand	1,080,774	
Accounts receivable	1,503,316	
Cash	549,780	
		$67,418,795

The funded debt includes $7,000,000 firsts; $2,573,000 seconds; $800,000 real estate bonds; $3,828,000 thirds; $1,294,000 branch line firsts; $14,505,000 consolidated bonds. Changes last year were the payment of the $700,000 St. Louis County loan and the issue of $1,805,000 consols, a total increase of $1,105,000.

The earnings of all the lines, 4,559 miles, were as follows:

	1885.	1884.	Inc. or Dec.	P. c.
Freight	$19,226,742	$20,583,585	D. $1,356.843	6.4
Passengers	5 894.681	6,125 875	D. 231,194	3.8
Mail and express.	1,355.619	1,444.696	D. 89 077	6.2
Miscellaneous	479,168	477.323	I. 1,815	0 4
Total	$26.956 210	$28.631,479	D. $1,675,269	5.8
Expenses	15,386,560	16,621,483	D. 1,234.923	7.4
Net earnings	$11,569,650	$12,009.996	D. $440,346	3 7
Gross earn. per m.	5,913	6 280	D. 367	5.8
Net " "	2.538	2.634	D. 96	3.7
Per cent. of exps..	57.1	58 1	D. 1.0	....

The loss in earnings was due partly to a decrease in traffic and partly to a general reduction in the rates received.

The division of the working expenses for the two years was as follows:

	1885. Amount.	Per ct.	1884. Amount	P. c.
Conducting transportation	$5,327,885	19.8	$5,704,345	19.9
Motive power	4,385,825	16.3	4,843,357	16.9
Maintenance of way	4,060,586	15.1	4 141,561	14.5
Maintenance of cars	1,064.538	3 9	1,366.149	4.8
General expenses	537.726	2 0	562,080	2 0
Total	$15,386,560	57.1	$16,621,483	58.1

The largest reductions were in maintenance of cars and in motive power. There was a considerable decrease in conducting transportation, but only a slight one in maintenance of way.

The results of the operation of the several properties, and the application of net income derived therefrom, classified in accordance with the outstanding stock, were as follows, the First Division including the Missouri Pacific and the St. Louis, Iron Mountain & Southern, 1,918 miles; the second the Missouri, Kansas & Texas, the International & Great Northern and the Galveston, Houston & Henderson, 2,211 miles:

	First Div.	Second Div.	Central Branch.
Earnings	$15,255,202	$9,815.387	$1,855,840
Expenses	8,030 542	6,149 837	1,184,225
Surplus earnings	7,224,660	3,665,550	671,615
Other credits to income from rentals, dividends, etc	837,577	298,433	.....
Total credits to income.	8,062,237	3 963 983	.....
Interest on bonded debt	4,038,032	3,448,227	.....
Dividends on stock, Mo. Pacific	2,098,235	.....	.....
Other debits to income, rentals, taxes, etc	936,136	365,431	.....
Total debits	$7,104,403	$3,813,658	.....
Surplus income 1885	959,833	150,325	.....

On the Missouri Pacific stock 7 per cent. dividends were paid. The Central Branch net income is paid over to its owner.

During the year 198 miles of new steel rails and 1,524,823 new ties were used in renewals; 34 miles of light steel taken up from main line were used to replace iron on branches. There were 151 miles of track ballasted, and 32 miles of new sidings built. About 7 miles of second track were built, completing double track from St. Louis to Kirkwood and from Kansas City to Independence. There were 23 new iron, 9 combination and 7 wooden bridges built, and a new steel draw-span put in the bridge over the Arkansas River. There were added to the equipment 17 locomotives, 6 passenger and 951 freight cars.

The total amount expended for extraordinary improvements and betterments was $311,185. This was included in the expenses.

The Missouri, Kansas & Texas land grant has been practically all sold, and the operations last year were confined to settlement of contracts and collection of accounts. From the Iron Mountain grant in Missouri 1,822 acres were sold at an average of $3.23 per acre, leaving 112,543 acres unsold; in Arkansas 33,017 acres were sold at an average of $3.33 per acre, leaving 863,340 acres unsold.

The train and car mileage for the year was as follows:

	1885.	1884.	Inc. or Dec.	P. c.
Pass. train-miles	5 932,135	5,606,884	I. 325,251	5.8
Freight train-miles	10,077.024	10 470.523	D. 433.549	4 1
Total locomotive-m.	23,377.650	21 129.588	D. 751,938	3.6
Passenger car-miles.	28,132 988	27.173,260	I. 959,728	3.5
Freight car-miles	204,678,7. 6	200,744,109	D. 5,065,403	2.4

The average mileage per locomotive last year was 36,645 miles; the cost, 22 cents per mile run. Locomotives ran 1 28 miles per revenue train-mile. Of the freight car-miles 71.3 per cent. was of loaded cars.

The traffic for the year was as follows:

	1885.	1884.	Inc. or Dec.	P. c.
Passengers car	4,610.299	4.445 067	I. 165,232	3.7
Passenger miles.	228,274,363	227,123,773	I. 1,150,590	0 5
Tons freight car.	6.080.760	6 046.171	I. 34.589	0.6
Ton-miles	1,388,816,056	1,405,127,418	D. 16,311,362	1.1
Average rate:				
Per pass -mile	2.58 cts.	2.69 cts.	D. 0.11 ct.	4.1
Per ton-mile	1.38 "	1.46 "	D. 0.08 "	5.5

The average passenger journey was 49.51 miles, against 51.10 in 1884. The average freight haul was 228.4 miles, against 232.4 in 1884. The decrease in tonnage was chiefly in flour and grain.

The coal traffic for the year was as follows:

	1885	1884.	Inc. or Dec.	P.c.
Mined on main line	1,031,180	1,002.972	I. 28,208	2.8
Received from other lines	448,259	514,287	D. 66,028	12 2
Total	1,479,439	1,517,259	D. 37,820	2.5

Of the coal mined on the line last year 480,091 tons were for the company's use, 82,272 tons sold to the Texas & Pacific and 468,817 tons were transported as commercial coal. The total tonnage of commercial coal was 629,551 tons. The total coal consumed by the company was 767,616 tons, at an average cost of $1.80 per ton. Important purchases of coal lands and coal company stocks in Missouri, Kansas and the Indian Territory were made during the year.

CONTROLLED LINES.

The St. Louis, Fort Scott & Wichita road was acquired by this company in 1882, when it extended from Fort Scott, Kan., to Eureka, 94 miles. It has since been extended to Anthony, making the main line 214 miles long, 17 miles having been built in 1885. A branch from Eldorado to Newton, 32 miles, was built in 1884. The earnings last year were:

Earnings ($2,763 per mile)	$663 052
Expenses (70.9 per cent.)	470,624
Net earnings ($802 per mile)	$192,428

The Wichita & Colorado was chartered as a branch from Wichita to Larned; 25 miles are now completed.

By an agreement made Sept. 30, 1885, the Central Branch, Union Pacific, was leased to the Missouri Pacific Co. for 25 years, dating from Dec. 6, 1880.

NEW CONSTRUCTION.

The report says: "The Rooks County Railroad, from Alton, Kan., terminus of the South Solomon Branch of the Central Branch Union Pacific, to Stockton, Rooks County, a distance of 18.3 miles, was completed and opened for business Nov. 13, 1884.

"The Topeka, Salina & Western Railway, comprising 15 miles of completed road, westward from Council Grove, Kan., and an unfinised grade beyond, has been acquired by the Missouri Pacific Co. and extended through Dickinson County to Chico, Saline County, Kan., a distance of 57.78 miles from Council Grove. The construction of a line from Chico to Salina, Kansas, 13 miles, under a separate charter of the Missouri Pacific Co. in Kansas, is in progress, the grading completed, and the rails will be laid during the coming spring.

"The Nevada & Minden Railway Co. has been chartered to construct a line from Nevada, Mo., to Chetopa, Kan., a distance of 72 miles, passing through the coal fields in Barton County, Mo., and Cherokee and Crawford counties, Kan. Thirty miles of grade have been completed upon this line, and the entire construction will be finished by July 31, 1886, affording facilities for the transportation of large quantities of bituminous coal from the coal areas adjacent to the line, and opening a valuable agricultural and commercial territory.

"Contracts have been let and work commenced upon the construction of the Memphis Branch of the St. Louis, Iron Mountain & Southern, extending from Bald Knob, Mo., to a point opposite Memphis, Tenn., a distance of 96 miles, to be completed on or before Feb. 1, 1887.

"The Council Grove, Osage City & Ottawa Railway has been chartered to construct a line from Council Grove to Ottawa, Kan., 70 miles, connecting the Topeka, Salina & Western with the Kansas & Arizona Division of the Missouri Pacific. Local subsidies have been voted to this company, and surveys made preliminary to the construction of the line during the coming year.

"Contracts have been let and work commenced upon the construction of the Lincoln Branch of the Missouri Pacific, extending from a point near Weeping Water to Lincoln, Neb., a distance of 34 miles.

"The Omaha Belt Railway, comprising about 6 miles of terminal track in the city of Omaha, Nebraska, and 14 miles of road to connect with the present terminus of the Nebraska Extension at Papillion, has been partially constructed, and will be completed during the coming year, enabling the Missouri Pacific to reach Omaha over its own rails, instead of leasing the tracks and terminal facilities of the Union Pacific from Papillion to Omaha, as at present.

"The construction of other lines in Southern Kansas, by local companies, has been encouraged, which, when completed, will be tributary to the Missouri Pacific system, and occupy a territory capable of producing in the future a large volume of traffic.

TERMINATION OF SUITS.

"The suits of the old Pacific Railroad of Missouri, commenced in 1876, against the Missouri Pacific Railway Co., questioning the validity of the foreclosure decree, under which this company acquired the title to its road between St. Louis and Kansas City, were ended and dismissed during the past year, and no further litigation exists relative to the company's title to its entire property.

"The decision of the Supreme Court of the United States, rendered since the close of the year, in the case of the St. Louis, Iron Mountain & Southern Co. against the Southern Express Co., and the Missouri Kansas & Texas Co. against the Adams Express Co., established the right of the railroad company to the entire control of the express business upon its lines. This decision also disposes of all similar cases pending in Circuit Courts of the United States.

"The decision of the United States Supreme Court rendered in the case of the Pullman's Palace Car Co., established the position taken by the defendants that the Pullman Co. had not the right to run its cars over the St. Louis, Iron Mountain & Southern Railway, under its contract with the Missouri Pacific Co.; and arrangements for future Pullman service are now being made on the basis of that decision.

"The loan to the old Pacific Railroad, by St. Louis County, Mo., which was held to be a first lien on the earnings of the road, amounting, with interest, to $715,478, has been fully paid by the Missouri Pacific Co., and that lien and debt discharged with the dismissal of all legal proceedings."

The operations of the several lines, given separately, were as follows:

MISSOURI PACIFIC.

The income account of the Missouri Pacific is as follows:

Earnings	$7,943,563
Expenses	4,338,319
Net earnings	$3,605,244
Dividends, etc., received	792,835
Total income	$4,398,079
Interest on bonds	$1,822,728
Taxes, rentals, dividends, etc	2,666,849
	4,489,577
Deficit for the year	$91,498
Surplus from previous year	4,884,794
Total surplus, Dec. 31, 1885	$4,793,296

The payments include dividends of 7 per cent. on the stock of the company.

ST. LOUIS, IRON MOUNTAIN & SOUTHERN.

The income statement for the year is as follows:

Earnings	$7,311,639
Expenses	3,692,222
Net earnings	$3,619.417
Other income	44.741
Total	$3,664.158
Interest, rentals, etc	2,612,827
Surplus	$1,051,331
Balance from previous year	1,684,952
Total surplus, Dec. 31, 1885	$2,736,283

This company has $22,083,195 capital stock (all owned by the Missouri Pacific Co.) and $35,564,353 funded debt.

MISSOURI, KANSAS & TEXAS.

The income statement for the year is as follows:

Earnings	$6,853,655
Expenses	4,055,101
Net earnings	$2,798,554
Other income	189,799
Total	$2,988.353
Interest and other charges	2,750,074
Surplus for the year	$238,279
Debit balance from previous year	3,402,639
Debit balance, Dec. 31, 1885	$3,164,360

This company has $9,676 preferred and $46,405,000 common stock. The funded debt is $41,766,061, an increase of $108,876 during the year.

INTERNATIONAL & GREAT NORTHERN.

The income statement for the year is as follows:

Earnings	$2,639,489
Expenses	1,814 850
Net earnings	$824 639
Other income	70,715
Total	$895.354
Interest and other charges	941.266
Deficit for the year	$45,912
Surplus from previous year	2,658,770
Surplus, Dec. 31, 1885	$2,612,858

This company has $9,755,000 capital stock, held by the Missouri, Kansas & Texas Co. The funded debt is $15,008,000, and was not changed during the year.

GALVESTON, HOUSTON & HENDERSON.

The income statement for the year is as follows:

Earnings	$322,243
Expenses	279.886
Net earnings	$42 357
Other income	38,118
Total	$80,475
Interest and other charges	122,318
Deficit for the year	$41,843
Debit balance from previous year	146,902
Debit balance, Dec. 31, 1885	$188,745

This company reports $1,000,000 capital stock. The funded debt is $2,000,000, and was not changed during the year.

No separate statement is made for the Central Branch other than that given in the general income account above.

Concord.

This company owns a line from Nashua, N. H., to Concord, 35 miles, with the Hooksett Branch, 7; the Epping Branch, 1, and the Manchester & North Weare, 19 miles. It leases (and largely owns) the Concord & Portsmouth, 40.5 and the Suncook Valley 20.5, making a total of 62 miles owned and 123 miles worked. The report is for the year ending March 31.

The company also owns the Nashua, Acton & Boston road, 20 miles, and one-half share in the Manchester & Keene, 29 miles.

The equipment includes 43 locomotives; 45 passenger, 7 combination and 12 baggage cars; 250 box, 140 lime box, 4 milk, 3 stock, 459 flat, 200 coal, 144 coal dump and 10 caboose cars; 1 pay-car, 6 service cars and 3 snow-plows.

The general account is as follows, condensed:

Capital stock		$1,500,000
Deterioration and contingent fund		112,350
Material accounts		80,000
Interest, rentals and May dividend		205,035
Notes payable		10,000
Cashier Concord Railroad Co		130,514
Total		$2,037,890
Construction	$1,500,000	
Leased lines and other property	308,084	
Through traffic expenses	545	
Materials	147,081	
Cash on hand	82,189	
		2,037,899

The company has no funded debt, and its floating assets largely exceed all floating and current liabilities.

The earnings for the year were as follows:

	1885-86.	1884-85.	Inc. or Dec.	P.c.
Freight	$640.714	$673.606	D. $32.892	4.9
Passengers	381,560	378,415	I. 3,145	0.8
Mail and express	32.444	31.674	I. 770	2.5
Rents, etc	17,245	17.169	I. 76	0.4
Total	$1,071,963	$1,100,864	D. $28.901	2.6
Expenses	619.390	694,484	D. 75.094	10.8
Net earnings	$452.573	$406,380	I. $46,193	11.4
Gross earn. per m.	8,715	8,950	D. 235	2.6
Net " "	3,680	3,374	I. 376	11.4
Per cent. of exps.	57.8	63.1	D. 5.3	...

Local freight earnings decreased, although there was an increase in traffic, because there was a considerable decrease in the rates received.

The income account is as follows:

Net earnings, as above		$452,573
Tax on capital stock	$33,872	
Manchester & Lawrence share of joint earnings	64,582	
Rentals of leased lines	47,950	
		149.404
Surplus for the year		$302,169
New depot and improvements at Concord	$86.283	
Improvements at Manchester	36,409	
New equipment	25.023	
Contingent and unsettled claims	4.000	
Dividends, 10 per cent	150,000	
		302,315
Balance carried to contingent fund		$854

The surplus for the year was thus equivalent to a little over 20 per cent. on the stock, but over one-half of it ($152,315) was expended for additions to property.

The traffic for the year was as follows:

	1885-86.	1884-85.	Inc. or Dec.	P.c.
Passenger train-miles	283,342	257.697	I. 25,645	10 0
Freight " "	262,130	299,334	D. 37,204	13.4
Total locomotive miles	823,647	816.272	I. 7,375	0.9
Passengers carried	671 513	648,409	I. 23,104	3.6
Passenger-miles	16,049.939	15,694,352	I. 355,587	2.3
Tons freight carried	1,162,820	1,114.143	I. 48,677	4.4
Ton-miles	37,229,941	36,077,453	I. 1,152,488	3.2
Average train-load:				
Passengers, No	55.7	61.0	D. 5.3	8.7
Freight, tons	142.0	121.0	I. 21.0	17.4

Local business last year furnished 66.3 per cent. of the passenger-mileage and 35.9 per cent. of the ton-mileage. Locomotives ran 1.51 miles to each revenue train-mile.

During the year a heavy passenger engine was built in the shops and a yard engine and two ten-wheel freight engines were bought. Two passenger, 6 box, 25 flat and 25 coal cars were built and two more passenger cars begun.

Renewals included 1,769 tons of 67-lb. steel rails and 68,943 new ties were used in renewals; 241 tons of light steel and 862 tons of iron rails taken from the main line were used in branches and sidings. There were 6,707 ft. new sidings laid. Several wooden bridges were replaced by iron girders.

The Concord passenger station was completed and the Manchester freight house extended 218 ft. A new station was built at Parker and other improvements made. Land has been bought at Concord and Manchester for the purpose of enlarging the yards there.

RAILROAD GAZETTE

Published Every Friday.

EDITORIAL ANNOUNCEMENTS.

Passes.—*All persons connected with this paper are forbidden to ask for passes under any circumstances, and we will be thankful to have any act of the kind reported to this office.*

Contributions.—*Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and in their management, particulars as to the business of railroads, and suggestions as to its improvement. Discussions of subjects pertaining to* ALL DEPARTMENTS *of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.*

Advertisements.—*We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay,* EXCEPT IN THE ADVERTISING COLUMNS. *We give in our editorial columns* OUR OWN *opinions, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.*

NEW YORK GRAIN RECEIPTS SINCE NOVEMBER.

The grain receipts at New York last April were exceptionally light, which is the more noticeable because in March they were decidedly large.

In April, and the four months ending with April, the total receipts of grain and flour (reduced to bushels) at New York have been for eight years:

Year.	April.	Four months.	Year.	April.	Four months.
1879	10,097,930	36,487,494	1883	5,678,801	32,014,713
1880	8,660 800	36,846.014	1884	7,280,765	23,011.344
1881	10,923,213	32,881,153	1885.	8 660.800	36,846,014
1882	4,587,339	22,234,288	1886.	3,778,751	28,481 654

The receipts in April were thus not half as great this year as last, and less than in any other of these years. We may add that they were also less than any other year since 1874 at least. But for the four months the showing is not so bad, the receipts being much larger than in 1882 or 1884.

Indeed, down to April the receipts this year had been above the average, they having been for the three months ending with March, in *millions* of bushels:

1877.	1878.	1879.	1880.	1881	1882.	1883	1884.	1885.	1886.
10.6	25.7	26.4	28.2	20.7	17.2	25 5	15.9	27.7	24.4

while the average since 1877 has been 23.5 millions.

Thus it is due to the very small April receipts that the receipts for the four months were much less than 1879, 1880, 1881, 1883 and 1885.

The light receipts last April were probably due to the holding of grain for the opening of the canal, which was done because the rail rates were considerably higher than canal rates this year.

Our chief interest in these receipts, however, is in the proportions carried by the different railroads. The Lehigh Valley has this year begun to carry grain to New York, and we found that in March it brought about 400,000 bushels, and in the three months ending with March probably twice that amount; and we also found that the Lackawanna brought an extraordinarily large share of the grain in March—more than any other railroad except the New York Central. The April report makes a somewhat similar showing. The Lackawanna brought to New York 18.3 per cent. of that city's aggregate grain and flour receipts, and the Lehigh Valley brought about one-fourth more than in March even, and more than one-eighth of the whole. The total being so small in April, a large proportion of it was not a large amount. For four years the receipts by each route have been:

	1883.	1884.	1885.	1886.
New York Central	2,049,616	2,376,133	3,199,838	1,019,477
Erie	2,042,397	2 658,343	2,054.094	743,496
Pennsylvania	632.551	1,023,277	1,314.416	362,732
D., L. & W.	495,917	641,244	611,017	644,101
West Shore		291,581	1,301,575	234,134
Other roads	40,669	50,000	43,971	519 932
Total rail	5,261.180	7.040,578	8,434,911	3,523,872
Coastwise	417,621	240.187	225,889	254.879
Total	5.678,801	7,280,765	8,660.800	3,778,751

Thus we see that the New York Central carried but half as much this year as in the worst of the previous years, the Erie only about one-third as much and Pennsylvania little more than one-fourth as much as last year; but the Lackawanna brought about the same as last year and the year before, when the total receipts were about twice as great as this year. The greatest decline, however, is by the West Shore, which brought 82 per cent. less than last year, and less even than in 1884, when it had been open but a very short time. As it is worked by the New York Central now, it will be interesting to compare the aggregate business of the two roads, which has been:

	1884.	1885.	1886.
Bushels	2,667.714	4,411.413	1,253,611
P. c of total	37.9	52.3	35.6

From 1880 to 1883 the percentage of the total brought by the New York Central alone in April was 51.3, 44.6, 52.1 and 39.0 per cent., respectively—greater in every year than the share of the two roads this year.

The receipts by the Lehigh Valley are included in those by "other roads," and as the figures for years previous to this year indicate, we may safely credit it with 470,000 of the 519,932 bushels credited to them, which is twice as much as the arrivals by the West Shore, and a quarter more than those by the Pennsylvania, with its immense system of controlled lines in the West. Evidently the Lehigh Valley is determined to have a share of the grain business, and is getting it. Of grain, exclusive of flour, it brought as much as any other railroad, except the New York Central. This company heretofore has carried little through freight, though it made itself felt at times before the close of last year. It is not easy to see why it should not obtain a share of the business in both directions if it can secure the necessary connections west of Buffalo, which it seems to have done, having a line by way of the Grand Trunk to Detroit and the Wabash system. It makes five lines between New York and Buffalo, instead of the two which had the whole of the traffic before 1883.

For the five months from Dec. 1 to April 30, which was for New York the season of closed navigation, the receipts of grain and flour (reduced to bushels) at New York have been for the last seven years, in *thousands* of bushels:

	1879-80.	1880-81.	1881-82.	1882-83.	1883-84.	1884-85.	1885-86.
N. Y. Cent.	18,832	17,123	14,398	19,141	13,971	17.203	13.920
Erie	11,089	13,564	7,981	12,883	7,918	9,919	8,659
Penna	6,298	8,481	3,114	6,215	3,586	7,011	4,601
Lackawanna	.....	.....	.....	1,767	2,175	4,016	5,473
West Shore	.....	.....	.....	.....	1,098	5,376	2,419
Other roads	571	753	332	374	382	449	1,035
Total rail	36,791	39,922	25,825	40,380	29,091	43,965	36,719
Coastwise	4,427	1,492	1,292	1,475	1,312	939	870
Canal		723	955	419	381	423	497
Total	41,218	42,157	27,072	42,294	30,784	45,327	38,086

Thus the total New York receipts during the five months ending with April were larger this year than in 1883–84 and 1881–82 (after light crops), but less than in the other four years, and 15½ per cent. less than last year, when they were largest. The receipts by water have been unimportant during these months, except in 1879–80, when December was so mild that about 4,000,000 bushels arrived by canal. The rail receipts were about the same this year as then, but were 16½ per cent. less than last year, 9 per cent. less than in 1883, and 8 per cent. less than in 1881. The rail receipts this year, however, were a little above the average of the previous six years, and therefore cannot be considered small; and remembering how much better the rates were this year than in any other of these years except 1880, 1881 and 1883, the business must be called very satisfactory in the aggregate. That it has not been satisfactory to the three old railroads which brought it all previous to 1883 is due to the opening of the three new roads, which this year carried as much as 9,092,000 of the total 36,719,000 bushels of rail grain, or a fourth of the whole. The percentage of the total brought by each railroad in each of these seven years has been:

	1879-80.	1880-1.	1881-2.	1882-3.	1883-4.	1884-5.	1885-6.
N. Y Central	51 2	42.9	55.8	47 4	48.1	39.1	38.0
Erie	30.1	34.0	30 9	31 9	27.2	22 8	23 6
Pennsylvania	17 1	21.2	12.0	15 4	12.3	16 0	12 5
Lackawanna	....	...	....	4.4	7.3	9.1	14.9
West Shore	....	..	....	....	3.8	12.2	6 6
Other	1.6	1.9	1.3	0.9	1.3	1.0	4.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Compared with 1881–82, the year before the first of the new roads was opened, we find that these (giving 3.5 per cent. of the whole to the Lehigh Valley this year) have taken just one-fourth of the business, and that of the 25 per cent. so diverted the New York Central has lost 17.8, and the Erie 7.3, while the Pennsylvania has gained. The Pennsylvania, however, had an exceptionally small share of the traffic in that winter, and compared with 1881 it has lost 8.7 per cent., and compared with 1880, 4.6. Compared with 1880 the share of the New York Central this year was 26 per cent., that of the Erie 21½ and that of the Pennsylvania 27 per cent. smaller. Thus the new lines have diverted traffic in quite equal proportions from each of the old roads. It is noticeable that this year the West Shore, being worked by the New York Central, and presumably maintaining rates strictly, has carried a much smaller share than last year, but the share of the Lackawanna has decreased by precisely as much as that of the West Shore has decreased, so that the Lehigh Valley's portion has been so much more diverted from the old roads. This road, moreover, has not been competing actively for the grain business during the whole of the five months period this year. We have seen that it brought 13½ per cent. of the total New York rail receipts in April; in March it brought about 4 per cent., and in January and February not more than 2½ per cent., so its ability to secure this traffic is probably greater than the share that it received during the last five months would indicate. Still it is not probable that it can continue to secure so large a share of the business as it had last April. The other lines were with very few exceptions maintaining rates then, and maintaining them at such figures as led most grain owners to hold for the opening of navigation, then close at hand; a small reduction from the regular rates at such a time enables a line to secure a large proportion of the shipments, as the Lehigh Valley and the Lackawanna did last April.

This traffic is of especial importance during the period considered, because then the railroads carry nearly the whole of it, and then only, under ordinary circumstances, can they make a considerable profit on it. While the canal is open, they must usually either carry small quantities or take it at rates but little above cost. It is at present, however, affording a considerable traffic to the railroads, there being such a pressure to ship as to keep the canal rates far above what they have been at this season for some years previous. An exceptionally large part of it comes from Buffalo, however, and with five lines instead of two competing for it there, it cannot be expected it will soon give any road such profits as the New York Central and the Erie got out of it in many years previous to 1884.

THE COMPUTATION OF EARTHWORK.

A correspondent in another column calls attention to an undoubted fact, that theory and practice are quite at variance in that work which employs every year so many men, the computation of earthwork quantities. Perhaps there is no subject which the average engineering text-book treats more imperfectly, nor which the average young graduate—whether he be a graduate of the axe or of a technical school—approaches with a more helpless feeling of not knowing exactly how to go about it.

This results from the fact that the subject is unhappily one on which the most hair-splitting mathematical formulæ are possible, and not only possible but readily shown by examples of distorted imaginary solids to be essential. The technical books, moreover, especially those intended for the use of students, are very largely written by those who have had no extended practical experience in the subjects of which they treat, or if they have had the experience, lack the knowledge or the patience to determine what is really wanted, which is, not what will give the most accurate results at any cost of labor with certain imaginary geometrical solids, but what will give, on the whole, the most accurate results with the solids which have actually to be measured, and with the amount of time which it is reasonable and practicable to give to measuring them.

At any rate, however it has come about, average practice and average teaching are both at fault on this subject, and it may be of service to a few, at least, to point out wherein.

In the first place, no earthwork solids are or can be exactly defined by the methods of practical field-work. Levels are taken only to the nearest tenth of a foot, involving a probable error in itself of 2 to 4 cubic yards to every 100 ft. They are, moreover, unavoidably so taken as to neglect minor curves of the surface, both longitudinal and transverse, to avoid endless and unprofitable labor, and these curves have a constant tendency to make the computed quantities err by deficiency, since the tendency of natural surfaces is to convexity in cuts and to concavity in fills, as our correspondent well points out.

On the other hand, there is a tendency in construction of the opposite character—to belly the slopes, and in large cuts material to the extent of a very considerable percentage is thus left unmoved, in a way which the eye does not readily detect, and which is difficult to measure if it is detected. Even if the slope be unbellied, it is, as a matter of fact, almost invariably started a few inches inside the slope-stake, leaving a triangular slice of material unmoved.

These causes make the actual volume of every railroad cut uncertain by from 10 to 15 or even 20 or 50 or 100 yards, even after the prismoidal formula has been applied to the bitter end, and this makes it ridiculous to attempt any finical precision in the computation of the individual solids. When a man, for ex-

ample, is seen computing earthwork to fractions of a cubic yard, as is not very unusual, it is a sure sign that, in that subject at least, he is an ignoramus, and a very considerable indication that he lacks one of the most vital qualities for success as an engineer, aptitude for adapting means to end.

But because decimal precision is unimportant it does not follow that accuracy should be or need be neglected, and here comes in another principle, which not a few engineers, especially those of a naturally pedantic disposition, find it still more difficult to appreciate—the law of "probability of error," which indicates that, with a sufficient number of approximate results free from a tendency to error in one direction, a correct final result may be determined with as much practical accuracy as if each individual result were precisely accurate. This law rests upon the following axioms, that in any large number of earthwork computations, for example, in each of which more or less error is possible or known to occur, but with nothing to make the error lie in one direction rather than another :

1. Small errors are more frequent than large ones.
2. Positive and negative errors are equally frequent.
3. Very large errors do not occur.

On the correctness of these axioms the most abstruse and exact mathematical computations depend, and their absolute reliability as applied to great numbers of chance errors has been proved again and again.

What we want therefore is merely to eliminate *tendency* to error in either direction, in computing earthwork ; and that done, possible inaccuracies of considerable magnitude in the individual solids are of no moment.

Tested by this standard, we see at once that the method of simply averaging the end-areas to determine the volume of earthwork solids is open to objection. It is not only inaccurate in detail, which is of no moment, but it tends always to excess ; and this in spite of the fact that in certain very peculiar solids the "end-area" volume may (as is not generally known) be smaller than the truth. On the whole, a considerable tendency to excess is not likely to be fair, but the question naturally arises whether, as this method is immensely easier than any other, there are not certain ascertainable limits within which it is sufficiently accurate, so that the more exact method can be used only when necessary.

Singularly enough, this naturally preliminary question is not discussed nor considered at all in most of the text-books on the subject, but the method of "end-areas" is given with a half-apology (if at all) as "approximate," and some particular method or methods for computing by the prismoidal formula, or some equally cumbrous equivalent, is given as the correct way, leaving the puzzled student to "pay his money and take his choice" between them ; but in one of the earthwork treatises* (and we do not at present recall any other) this question is discussed of when, where and how the "end-area" method and the various devices for applying the prismoidal formula or some equivalent (for there are several) are correct or incorrect; and the proper manner given of using each, in accordance with the above principles. Considering that it is, after all, a very simple matter to do all this, it is surprising that it is not done in every treatise on the subject, but it does not seem to be.

We cannot attempt to follow the mathematical evidence, but the conclusions indicated in the discussions referred to, the essential correctness of which we judge to be beyond question, are as follows :

First: The error in "averaging end-areas" increases in proportion to the product of the difference in the centre-heights, and in the total width (or approximately as the squares of the difference of centre-heights) regardless of the absolute areas of either section. For a difference of centre-height of 2 ft., the error, with regular sections, is in the neighborhood of 4 cubic yards, which is the least error which should be considered as raising a practical objection to the use of the simpler method.

Secondly: When the prismoidal formula is used at all, not only the simplest but the most exact method is to determine first the "end-area" volume of every solid, and afterwards determine, for such solids only as need it (those differing by 2 ft. or over in centre-height), a correction called the "prismoidal correction," which is easily made to give the exact difference between the approximate and theoretically exact volume, but preferably should be determined by assuming that, for the purpose only of determining this correction, the solid may be assumed to be a level section of its actual centre-height. These corrections are determined at any time during the progress of the work from a very brief table, added together, and deducted in gross from the previously determined gross volume of the entire cut, fill or section.

This is obviously a very simple process, and the following shows it to be practically the most correct :

Any direct application of the prismoidal formula to the solid, besides being laborious, gives the correct volume for the *imaginary* solid defined by the right lines fixed in the notes, but is really less exact than the method above—which has a very slight tendency to excess—in that it neglects the constant tendency of natural surfaces to crown somewhat.

Any method whatever of transforming an irregular section into what is called an "equivalent section" of equal area but different form, whether with a level or sloping surface line, introduces a constant tendency to deficiency in the resulting volume, small in each solid, but always in one direction, so that in the aggregate of a large number of solids these cumulative errors will produce an aggregate deficiency, smaller indeed than the excess in the "end area" volume, but considerably larger in deficiency than the method above recommended will be in excess, even assuming that the field-notes correctly bound the actual solid.

From this it follows that the labor of transforming sections of actual earthwork into "equivalent level (or sloping) sections," which is inculcated in most text-books, is much worse than labor thrown away, since a cumulative tendency to deficiency is grossly unfair. It owes its prevalence beyond doubt chiefly to one fact: that a man will sit down in his closet and draw some extraordinary or unusual solid and find that, as respects that one solid, the elaborate methods give the most accurate results, while the "approximate" methods are considerably more in error ; while few seem to have the plain "horse sense," or working familiarity with the theory of probabilities, to realize that a probable error of one cubic yard, *always in one direction*, on each of a thousand solids, leads to a far greater and more dangerous error in practice than a probable error of 10 cubic yards on each solid, with no tendency to error in either direction. In the one case the probable aggregate error is 1,000 cubic yards, in the other it is simply $\frac{10}{\sqrt{1000}} \times 1000$, or 316 cubic yards. For 10,000 solids, we have a probable error of 10,000 by the "accurate" method, against 1,000 by the "approximate."

That this is true in fact as well as in theory is shown in the volume referred to in several ways, one of which is by taking eleven exceedingly irregular solids from a treatise on earthwork computation, being all there were in the volume, and computing their volume in four different methods, with the following result :

	cu. ft.
Error in volume given by computing the middle section and applying the prismoidal formula directly assumed as (Which was not likely to be the case, as the solids were extremely irregular.)	0
Error on all the solids in "averaging end-areas"	+ 5,714
Error on all the solids after correcting the latter by a "prismoidal correction" by the approximate method recommended above (an unusual result, due to the extreme irregularities of the solids. The error is usually in excess.)	— 369
Error in reducing all the sections to "equivalent level sections," and then applying the prismoidal formula (the common basis of tables)	— 2,038
Error in another still more elaborate method of equalization, needless to give in detail	— 1,757

We may further echo a statement made immediately below these results, that "this subject has not been discussed on account of the intrinsic importance of the discrepancies involved, but to show that the simplest methods, which seem merely approximate, are also more nearly correct than any process of transformation, although every step in the latter has an appearance of elaborate accuracy. Such needlessly tedious methods make the use of end-area soliditie almost universal, but more accurate results may be reached with an inconsiderable amount of labor, which can hardly be an objection to the most indolent."

A further conclusion to be drawn from the preceding summary, that whenever a merely mechanical method, as by diagrams, or (for very irregular earthwork), the planimeter, can be used to save the dreary treadmill round of computing each quantity numerically, it should by all means be used. There is a certain small possible error in each single reading involved therein, whereas the computed result may be carried out, if one is foolish enough to do so, to thousandths of a yard; but the possible error, even on a single solid, is of no moment, being far within the possibilities of error from other causes, while, from the fact that there is no tendency in this error to be in one direction more than the other it is not only probable but mathematically certain that the average error in 100 or 10,000 solids will be only $\frac{1}{10}$ or $\frac{1}{100}$ part as much *per solid* as the error on a single solid, within a minute probable variation. But whether one wishes to use diagrams or not, it is at least desirable that he should know the road to the greatest accuracy with the least labor, which the majority of text-books do not give.

* Methods for the Computation from Diagrams of Preliminary and Final Estimates of Railway Earthwork, with Diagrams giving Quantities by Inspection to the nearest cubic yard, for both Regular and Irregular Sections, direct from Ordinary Field Notes. By Arthur M. Wellington, C. E. D. Appleton & Co. 1875.

We have had, up to this time, reports of April earnings from 71 railroads, whose aggregate earnings were :

	1886.	1885.	Increase.	P. c.
Earnings.....	$22,756,180	$22,306,755	$449,425	2.0

The aggregate change is very small, and not many of the roads reporting have large gains or losses. The month was an unfavorable one last year.

In their report on the fatal accident at West Deerfield on the Troy & Greenfield road on April 7 last, the Massachusetts Railroad Commissioners find from the evidence before them that the accident was caused by the sliding of the embankment, and that this sliding was due to three causes :

1. The use of timber crib-work in the original construction of the road, which was afterwards covered up and the existence of which was not known to the present management.

2. Insufficient cross-drainage, permitting the water accumulating in the lateral drains to soak through and assist in the rotting of the timber crib-work and the disintegration of the embankment.

3. The dumping of the broken rock, taken out when the second track was built, on the slope. This, the Commissioners think, would not have been a cause of failure alone, but it combined with the other causes.

The Commissioners find that the track was watched with more than ordinary care, and that the management of the train was not in any respect at fault. They justly acquit the management of both the State road and the Fitchburg Railroad of blame, holding that, under the circumstances, no human foresight could have averted the accident, especially as the original defective construction of the road was necessarily entirely unknown to the officers now in charge.

Incidentally the Board refers to the fatal injuries to the engineer caused by the escape of steam from the boiler of the wrecked engine, and commends to the railroad companies Mr. Forney's paper on attachments to boilers, read before the Master Mechanics' Association in 1881. With regard to the burning of the cars, the Commissioners find that the ordinary precautions for protecting stoves and lights were in use, but while these might be of much service in a slight accident, they were utterly useless in such a catastrophe as this, where the cars were rolled over five or six times down a bank 120 ft. high.

As to the question of the responsibility of the state or the Fitchburg Railroad Company for personal damages, the Board makes no present decision, postponing it until the accounts between the state and the operating company shall be settled, after the close of the railroad year. The general tendency of the report, however, is to acquit the operating company of blame, and thus necessarily to throw the burden upon the state, which maintains the road and is responsible for its condition.

The existence of the timber crib-work was a fact which had not become known at the time that we discussed the accident and surmised that the catastrophe must have been due to the third cause found by the Commissioners—the large spoil-bank of loose rock thrown outside of the theretofore inconsiderable fill on the steep 1 to 1 slope. But even with all the testimony which has since appeared, it still seems doubtful if this was not the chief immediate cause of the disaster, in the sense that if the spoil-bank had not been there the disaster would not have occurred. The accident occurred by sudden *sliding* of the bank. Timber which gives way by decay, if laid horizontally in a crib-work, gives way gradually, and would not tend to facilitate sliding, but rather to retard it, until so utterly decayed that it would long before have given warning by minor settlement. The great predisposing cause which had been thoughtlessly added to start a slide before the timber itself was in condition to start it, may well, as a matter of fact, have been rather resisted by the timber, for the time being. Covering up of timber as was done was, of course, the worst of bad practice—so unquestionably bad that it is natural that the Commissioners should seize on it as a chief explanation—but it is so bad that no one would defend it, and the lesson to engineers is to avoid piling waste on the outside of steep side-hill fills.

The accident this week on the Grand Trunk Railway, near Brompton, Canada, in which a rear car loaded with passengers became detached on a steep

down grade and shortly after collided with the front part of the train with great force, is an unusually forcible evidence of the advantage of the automatic brake, and one which the Grand Trunk will not be likely to disregard. Every one of the 40 passengers in the car was more or less injured, and 11 of them seriously, although it is not reported that any will die. As so often happens, the accident was to an excursion train, a circus train having been the victim of one of the leading accidents of last week. It seems at first sight singular that every one of the passengers in the wild car should have been injured and none in the train, but when we remember that every one of the passengers in the former started out of his seat at the rate of 30 or 40 ft. a second at least, while the mass of the whole train in front resisted any very sudden increase of velocity, it is not so singular. It is striking evidence of how little an average crowd can be trusted in an emergency that no one should have thought to put the brakes on, and the query also naturally arises, where the brakeman was who "must be stationed on the rear car of every passenger train in motion" on most well-regulated roads.

Another accident this week which gave so forcible an evidence that it may be effective of a rare but very great danger, was the blow-up of a powder car near Chattanooga, killing three men. The powder car, it is reported, had been put behind the locomotive in spite of orders to push it up the hill, but as the powder was for a coal mine receiving frequent shipments, possibly the "order" was of the kind which is not unknown to many books of rules—enough to shield the management from responsibility in case anything went wrong, but not intended to be strictly enforced, and not enforced in practice. At any rate, the car was (1) behind instead of in front. (2) a keg was overturned, (3) it spilt some of the powder on the floor, (4) a spark came on the powder the instant after, before the loose powder could be brushed off the floor, and (5) three men lived just long enough to be very sorry they did it. All this might equally well have happened with closed box cars, with doors hung on in the usual fashion, and powder is carried very largely in such cars, especially on new roads.

When the Boston & Lowell Company two years ago secured the leases of what are locally known as the "upper roads"—the Northern; the Boston, Concord & Montreal and their dependencies—it was generally supposed that the Concord Railroad, which is the short line connecting the Lowell Company's Massachusetts system with its newly acquired lines north of Concord, must soon follow the other New Hamphire lines and become part of the Lowell system. Thus far, however, it has maintained its independence, and has continued to carry the traffic passing between the southern and northern lines of that system with but little apparent evidence of friction or disagreement. It has been an open secret, however, that the Concord managers were not at all satisfied with the position of affairs, and that they had never ceased to regret the policy of delay which enabled the Lowell Company to secure the control of the Northern lines.

The leases of the New Hampshire lines have never been confirmed by legislative action, and suits were brought some time ago by dissatisfied stockholders to set them aside. A decision in these suits will, it is expected, be rendered by the Supreme Court before very long, and, in anticipation of that decision, the control of the Boston, Concord & Montreal stock and of its board of directors has been secured by a party of New Hampshire gentlemen, who have quietly bought up nearly all the large blocks of stock which were held in Boston, and have secured the co-operation of a number of the small holders. That these gentlemen have any means of anticipating what the decision of the Court will be, is not probable, but they include among their number several shrewd operators who are likely to guess pretty closely at the result. In any event, however, they are not likely to lose anything, for their stock has been bought at about the market price. They announce that their intention is to bring about a union of the Concord, the Northern and the Boston, Concord & Montreal roads, forming a New Hampshire system which will be strong and independent enough to stand by itself and to resist all outside influences.

It is quite possible, however, that this programme is intended simply to cover a deal in the stock, and that the combination means nothing more than an attempt to unload upon the Boston & Lowell people at a profit. The Concord Railroad Company on Tuesday re-elected its old directors, and there was no sign of any changes in the ownership of its stock.

Should the leases of the upper roads be confirmed by the Court, the Concord Company is not likely to break the p resent relations, with the possible result of losing more than half its business. It would not be a difficult or very expensive work for the Lowell Company to parallel the 35 miles of road from Nashua to Concord. The principal trouble would be to secure a charter from the New Hampshire Legislature for a new road.

The plans for the reorganization of the Philadelphia & Reading Company do not, apparently, make much progress. The so-called syndicate plan appears to have the most prospect of success, chiefly because of the financial standing of its backers, and because they have ready a large sum of money, which is essential to any settlement of the company's difficulties. On the other hand, it does not as yet appear to have received the support of any considerable amount of securities outside of those held by the members of the syndicate, and its success cannot be predicted so long as this continues to be the case. Whether holders of securities distrust the plan, or are simply waiting to see what others will do, the result is the same, and no progress is made.

President Gowen's long-promised plan has not yet made its appearance. With his usual sanguine trust in the future, Mr. Gowen promises that his plan will solve all difficulties, and avoid alike the necessity of foreclosure and of assessments on the stockholders, but it is not quite ready, and those who still retain their faith in his management must feel their patience somewhat stretched. Mr. Gowen also claims to have at his command all the financial aid needed, but the indications are that he has no considerable amount at his command as yet, whatever promises he may have received. Mr. Gowen has always been disposed to draw largely on the future, and apparently has not been discouraged by his past failures.

The situation does not improve by delay, and every day brings nearer the time when it will be no longer possible to prevent the breaking up of the property by the foreclosure of the separate mortgages—a result which would probably mean the absorption of most of it by more successful rivals.

In the second week of May, as in the first week, the trunk line shipments of freight from New York were unusually light. For seven successive weeks they have been, in tons:

Week ending						
Apr. 3.	Apr. 10.	Apr. 17.	Apr. 24.	May 1.	May 8.	May 15.
21,326	21,017	22,700	21,304	18,523	16,869	17,211

The average weekly shipments in the month of May in previous years has been, in tons:

1880.	1881.	1882.	1883.	1884.	1885.
17,692	18,961	30,492	18,130	22,270	22,389

The average so far this year has been 17,040 tons, which is 24 per cent. less than last year, 23½ less than in 1884, and 6 per cent. less than in 1883. The April movement was but 11½ per cent. less this year than last, the March movement 2 per cent. less, while the January and February movements were substantially the same both years. The decrease in May is a serious one, which will probably be charged entirely to the labor troubles, and was doubtless, partly at least, due to them. It is to be said, however, that there may have been diversion of freight to the canal this year, which the extremely low rates prevented last year, when, too, the canal was not open so early. But this does not account for the decrease since 1884 and other years, when rail rates were maintained.

The Northwestern grain shipments, which were large without precedent the first week navigation was open, but were exceptionally small the next week and not important the third week, in the fourth week, to May 15, may fairly be called large again. For the first four weeks of lake navigation these shipments have been in successive years:

Year.	1st week.	2d week.	3d week.	4th week.	4 weeks.
1879	4,558,360	4,175,308	6,226,747	4,802,116	19,762,531
1880	7,730,317	3,805,446	3,984,877	4,361,732	19,882,372
1881	4,974,840	4,096,344	6,228,275	6,047,136	21,349,595
1882	2,911,494	3,341,280	3,494,156	3,463,298	13,210,228
1883	7,015,225	7,573,274	3,401,692	4,218,677	22,208,868
1884	6,290,827	4,107,229	4,604,459	4,343,314	19,345,829
1885	8,370,396	4,563,136	3,959,403	7,283,413	24,176,348
1886	9,430,639	3,350,246	4,862,323	5,607,759	23,250,967

Thus the total shipments for the four weeks were larger this week than in any other except last year, and but 3¼ per cent. less than then.

The *rail* shipments, however, make a very different showing, having been for the four weeks:

Year.	Bushels.	P.c. of total	Year.	Bushels.	P c. of total.
1879	9,048,516	45 8	1883	8,438,001	38 0
1880	5,511,833	27.7	1884	10,309,161	53.3
1881	6,256,071	29.3	1885	10,368,844	42 9
1882	5,698,274	43.1	1886	6,642,714	28.6

The years of very low rail rates are identical here with the years of very large rail shipments, except that in 1883 a 25-cent rate was supposed to be maintained, and probably was pretty well maintained at Chicago, for rail shipments thence were light at that time. With that exception the rail shipments this year have been larger than in any other when rates were maintained—a fifth more than in 1880, when the rate was 30 cents, and a sixteenth more than in 1881, when the rate was the same, but was cut to some extent. The *gross* earnings from these rail grain shipments must have been about 7 per cent. more this year than last year or the year before, a sixth more than in 1882, but in these proportions:

1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.
1,028	1,000	1,131	858	1,271	930	936	1,000

Thus this traffic, which was supposed to be abandoned this year, is likely to have yielded about as much gross earnings as in any other year except 1881 and 1883. It should be said, however, that if flour were included the showing would be more unfavorable to the railroads, as until this year they have carried most of the flour, even when their rates were highest.

The Lake Shore & Michigan Southern report for the first quarter of this year shows, compared with last year, an increase of $270,133 (8½ per cent.) in gross earnings, a decrease of $126,097 (5⅝ per cent.) in working expenses, and so an increase of $396,230 (44 per cent.) in net earnings. Last year the latter were $62,607 less than the fixed charges; this year $337,497, or 68 cents per share, more than those charges.

Last year, however, was the most disastrous in the company's history, as appears from the following statement of the results in this quarter to March 31 for fourteen years:

Year.	Gross earnings.	Expenses.	Net earnings.	Int and rentals.	Surplus.
1873	$4 820,280	$3,221,317	$1,598,963	$663,640	$935,323
1874	4,424,385	2,723,158	1,701,227	752.048	949,179
1875	3,488,923	2,702,326	1,786,597	702.574	1,084,023
1876	3,386,535	2,156,682	1,229,853	689.997	539,856
1877	3,059,074	2,309,947	749,127	693,914	55,213
1878	3,519,524	2 096,071	1,423,453	679 698	743,755
1879	3,537,524	2,084 071	1,453,453	688,747	764,706
1880	4,783,843	2,285 603	2,498 240	722,009	1,776 231
1881	4,468,954	2,646,862	1,822,092	681,000	1,141,092
1882	3,899,740	2,722,778	1,176,962	750,000	4 6,966
1883	4,538,617	3,061,202	1,777,415	874 702	902,713
1884	3,684,022	2,330 831	1,353,191	930,167	423,024
1885	3,235,071	2,338,478	896,593	959,199	*62,606
1886	3,505,203	2,212,580	1,292,823	955,326	337,497

* Deficit.

Thus the surplus over fixed charges—the stockholders' profit—was less this year than in any other except last year and 1877—not much less than in 1884, when the profit for the whole year was $4.02 per share, or 1882, when the profit for the whole year was $8.02 per share, and when $700,000 less was required for fixed charges, but the profit was 62½ per cent. less than in 1883, 70 per cent. less than in 1881, and 81 per cent. less than in 1880, when the profits of this single quarter were $3.60 per share.

The quarter in question was less favorable to the railroads from Chicago east than to the Eastern trunk lines with which they connect. Through rates were generally (except for two months on live stock) well maintained in the quarter, but Chicago shipments were light, and this company did not get its usual share of them.

April Accidents.

Our record of train accidents in April, given on another page, contains notes of 24 collisions, 39 derailments and 3 other accidents; a total of 66 accidents, in which 23 persons were killed and 105 injured.

Ten derailments caused the death of one or more persons each; 6 collisions and 11 derailments caused injury to persons, but not death. In all, 10 accidents caused death and 17 injuries, leaving 39, or 59 per cent. of the whole number, in which there was no injury serious enough for record.

The 24 collisions injured 14 persons; the 39 derailments killed 23 and injured 91, while in the 3 other accidents no one was hurt.

Of the killed 10 and of the injured 43 were railroad employés, who thus furnished 43½ per cent. of the killed, 41 per cent. of the injured and 41½ per cent. of the whole number of casualties.

As compared with April, 1885, there was a decrease of 15 accidents, but an increase of 9 killed and of 30 injured.

These accidents may be classed as to their nature and causes as follows:

COLLISIONS:		
Rear	19	
Butting	3	
Crossing	2	
		— 24
DERAILMENTS:		
Broken rail	2	
Broken frog	1	
Broken bridge	2	
Spreading of rails	4	
Broken wheel	2	
Broken axle	4	
Broken brake beam	1	
Accidental obstruction	1	
Cattle on track	3	
Wash-out	2	
Land-slide	4	
Wind	1	
Misplaced switch	4	
Rail removed purposely	2	
Malicious obstruction	1	
Unexplained	5	
		— 39
OTHER ACCIDENTS:		
Broken parallel-rod	1	
Accidental obstruction	1	
Car burned while running	1	
		— 3
Total number of accidents		66

Six collisions—one-fourth of the whole number—were

caused by trains breaking in two; 5 by misplaced switches, and 1 each by fog and by cars run out of a siding upon the main track.

A general classification of these accidents is made as follows:

	Collisions.	Derailments.	Other.	Total.
Defects of road	..	9	..	9
Defects of equipment	6	7	1	14
Negligence in operating	16	4	..	20
Unforeseen obstructions	2	11	2	15
Maliciously caused	..	3	.	3
Unexplained	..	5	..	5
Total	24	39	3	66

Negligence in operating is thus charged with 30 per cent. of all the accidents, defects of road with 13½, and defects of equipment with 21 per cent.

A division according to classes of trains and accidents is as follows:

Accidents;	Collisions.	Derailments.	Other.	Total.
To passenger trains	3	9	1	13
To a pass. and a freight	6	..	..	6
To freight trains	15	30	2	47
Total	24	39	3	66

This shows accidents to a total of 90 trains, of which 22 (24½ per cent.) were passenger trains, and 68 (75½ per cent.) were freight trains.

Of the total number of accidents 42 are recorded as happening in daylight and 24 at night.

The number of accidents was smaller than in any month since May of last year. This was the case in spite of some unfavorable conditions, stormy weather and heavy rains extending over a large part of the country.

The worst accident of the month was the fatal derailment of a Fitchburg Railroad train on the Troy & Greenfield road, which has already been described and discussed in our columns.

For the year ending with April the record is as follows:

	Accidents.	Killed.	Injured.
May	62	8	65
June	75	24	115
July	76	28	75
August	92	37	172
September	91	25	98
October	123	36	134
November	96	19	118
December	74	31	153
January	94	40	90
February	98	21	157
March	81	49	131
April	66	23	105
Total	1,028	341	1,413
Total, same months, 1884-85	1,259	365	1,690
" " " 1883-84	1,500	441	1,947
" " " 1882-83	1,559	424	1,795

The yearly average for the four years was 1,337 accidents, 393 killed and 1,711 injured The monthly average for the year was 86 accidents, 28 killed and 118 hurt.

The averages per day for the month were, 2.20 accidents, 0.77 killed and 3.50 hurt; for the year they were, 2.82 accidents, 0.93 killed and 3.87 injured.

The average casualties per accident were, for the month, 0.348 killed and 1.591 hurt; for the year, 0.332 killed and 1.375 injured.

The month thus makes a favorable comparison as to the number of accidents, although the number of casualties was higher in proportion than the average for the year. This was due chiefly to the single accident at Bardwell's Ferry, with its large number of killed and injured.

The Proposed New Interchange Rules.

The suggested recodification of the rules for interchange of cars which was published in our last issue is certainly a great improvement. Examination of the rules as revised from year to year since the practice of revising the rules at the Master Car-Builders' Convention first began, in 1877, shows that the process has been almost invariably one of accretion, new rules and clauses being added as one omission after another was detected, but little or nothing struck out or re-worded. The inevitable result was more or less ambiguity and misarrangement. This year for the first time a thorough recodification is proposed, and how complete the rearrangement is will be evident from the following table showing the new and old numbers of the rules, which may be convenient for those studying the proposed form:

New rule.	Old rule.	New rule.	Old rule.	New rule.	Old rule.
1	7	11	New	21	16
2	1-7	12		22	15
3	3	13	9	23	
4		14		24	
5	5	15	10	25	14
6		16	16	26	New
7	9-10	17	12	27	18
8	7	18	13	28	19
9		19	13	29	21
10	8	20	15	30	Preamble
				31	21

Besides the change of order, hardly a single one of these rules retains exactly its former wording, and in almost every instance the changes are to abbreviate, so that there is a great deal more provided for in the rules in rather less space.

The change of greatest real importance, if it be only enforced, is one which was first suggested, we believe, by this journal, viz., that in new Rule 14, which now requires that "specific mention must be made of each wheel and axle removed *or applied*," giving makers, dates, numbers, marks, etc., *for both*, the applied as well as removed.

Heretofore this information has been required and given only for the wheels removed, and it has been in the power of each road to put on any kind of a mass of cast iron it chose to call a wheel without let or hindrance, charging for it the price of a first-class wheel, which the home road had then blindly to pay for, without any evidence as to what kind of a wheel it was until months or years after the wheels had been paid for, and then only by some lucky chance.

That so dangerously and unwarrantably loose a practice should have continued unchecked and unprotested against for so many years is a striking indication that there is still much to be amended in railroad management. Maintenance of wheels and axles constitutes nearly half the total cost of car repairs, and a very large proportion of this expense is incurred for renewals made on foreign roads. Yet in the face of this fact there is not in this country a single road which interchanges cars which can now make out a correct list of the different makes of wheels or axles under its cars, or of those applied in any one year. It knows what it has itself applied, but little or nothing as to the large proportion which have been applied by foreign roads at its expense. What is the natural consequence of such a system? Plainly that each road will discover, or think it has discovered, or pretend that it has discovered, that poorer wheels are being applied to its cars than it is applying to foreign cars, and a race will begin to see who can get the best of the game by putting on the poorest wheels. This has gone so far that in some instances that we know of, and no doubt in many others that we do not know of, roads have bought inferior wheels which they would not allow to go on their own cars, for the express purpose of applying them to foreign cars, justifying themselves in so doing by the claim that "they gave as good as they got, and did not propose to do more."

The Executive Committee have done well, therefore, in reconsidering the intention which they expressed in October last to recommend a form which was no improvement in this respect on the previous form. One further change in the rules seems desirable in this respect, a clause giving specific authority to any road to object by name to any brands of wheels of known inferior quality being applied to their cars.

Another very desirable change which has been made in the new code is that in Rule 28, making acceptance of the code continuous *through its successive revisions* instead of for only one year, until notice of withdrawal is filed (with the Secretary instead of the President, as formerly), and likewise expressly stipulating that acceptance or rejection (rejectance the rule has it) of the code must be as a whole, and exceptions to individual rules shall not be valid. In several instances it has happened that roads which found some one rule inconvenient, or thought they did, have arbitrarily refused to agree to it while accepting the remainder, thus in great degree destroying the very purpose of the code.

The other desirable additions, some of them reminders of very curious omissions, are these; there have been no important omissions, except of mere verbiage or repetitions:

Rule 3 (causes for rejecting cars). *Wheels worn out, wheels with cracked brackets, wheels gauged so as to be unsafe to run, wheels loose on axle* added to the former list of causes for rejection. A specific point to measure from (⅝ in. above tread), to determine minimum width of wheels with chipped tread, is also fixed. This minimum is increased to 3¾ from 3½ in., being practically equivalents except with flange-cut wheels.

Rule 5. Defect cards must be filled in with ink or indelible pencil. The form is left unchanged.

Rule 7. A stipulation is added that wheels must be bored out larger, and not axles turned down to fit the wheels, which it is to be hoped is for most roads needless.

Rule 12. A new rule as to private cars, permitting repairs to be made to be paid for by the owners, in the same manner as railroad companies. A clause has likewise been added in Rule 28, permitting "any railway company, *private party or private corporation*" to become a party to the rules.

Rule 13. The rather cumbrous separate charges introduced last year for boring and fitting, drawing and replacing and turning axles, are abandoned, all being included in the stipulated prices for wheels and axles, which are in the same convenient form (new, second-hand and scrap prices for each size of wheel and axle) as that first used last year. A new charge for refitting loose or badly-gauged wheels ($1.50 per axle) is added.

Rule 15. (Noting defects of wheels on bills.) *Broken in pieces, loose, out of gauge, small journal* added. Also the former note as to cracked brackets, "state number cracked"—which by implication gives authority to remove wheels for even one crack, while this cause was not given at all in the causes for rejection—is changed to "3 cracked brackets adjacent" or "4 (or more)" anywhere.

Rule 22. The settlement prices for cars are not changed from last year, apparently with the idea of leaving changes, if any, to the Convention, but the form is rearranged and systematized, and two important further changes made: one reducing the depreciation allowance on old cars from 6 per cent. to 5 per cent., which implies a 20 years' life, and we may hope is an indication that the average life of cars is increasing; and the other making provisions for settlements for loss of refrigerator and other unscheduled cars by agreement, and fixing the same depreciation for them. We should imagine that there might be some debate over the proposed change of percentage, as under it, it will take 12 years for cars to depreciate to 40 per cent. of their value new. Most roads, we fancy, would be glad to sell off all their twelve-year-old cars at that price.

RULE 25. Prices for material furnished are fixed for *cast steel, phosphor-bronze, pine* and *oak*, and credit prices for all old metal—all previously omitted.

Rule 30. A provision is added against possible dispute as to the number of cars represented, making the last issue of Poor's Manual the arbiter. This is open to the sole objection that Poor's Manual usually comes out just a little too late for the Convention, and often has statistics still older, which may lead to possible hardship in cases of considerable recent changes. If the rule explicitly gave the first authority to a certificate from the General Manager if presented at the opening of the Convention, it might prevent possible dispute as to its true meaning, which may plausibly be contended that no member shall vote more cars than are shown in the last available edition of the "Manual," perhaps for a date 18 or 20 months past.

An apparently unintended change has been made in clause *k* of Rule 3, where the least diameter of axle for a 60,000 lb. car is given as 3½ in. It was formerly 3½ in. for 6-axle cars only, which are so few that they may be counted out, and for 4-axle cars of that capacity 3¾ in. was required last year, and would seem none too large.

Pennsylvania Railroad Earnings in April.

The Pennsylvania report for April is favorable in showing a small increase over the poor results last year, but unfavorable as showing a large decrease from 1884 and 1883. For ten successive years the gross and net earnings and working expenses of the lines east of Pittsburgh and Erie have been:

Year.	Gross earnings.	Expenses.	Net earnings.
1877	$2,346,704	$1,765,148	$581,556
1878	2,509,805	1,632,509	877,297
1879	2,630,023	1,598,995	1,031,028
1880	3,488,387	1,992,785	1,495,582
1881	3,786,372	2,104,562	1,655,810
1882	3,855,850	2,536,539	1,319,311
1883	4,061,750	2,593,919	1,467,831
1884	4,116,309	2,461,853	1,694,456
1885	3,704,890	2,431,942	1,272,948
1886	3,862,617	2,541,753	1,320,864

The increases over last year are:

	Gross earn.	Expenses.	Net earn.
Amount	$157,727	$109,811	$47,916
Per cent	4.3	4.5	3.8

and the decreases and increases from 1884:

	Gross earnings.	Expenses.	Net earnings.
Amount	(Dec.) $293,692	(Inc.) $79,900	(Dec.) $373,592
Per cent	7.1	3.2	22.0

The working expenses this year were exceeded only in 1883; the net earnings were nearly the same as in 1882 and less than in 1880 and 1881 as well as 1883 and 1884.

The surplus or deficit of the lines *west* of Pittsburgh and Erie after meeting all obligations has been in April:

1879, Deficit	$96,606	1883, Surplus	$124,382
1880, Surplus	268,048	1884, "	43,019
1881, "	489,461	1885, Deficit	4,895
1882, "	19,557	1886, Surplus	71,110

The result this year is a gain of $117,005 over last year, which is about like the gain on the Eastern system, the gross earnings of the Western system averaging something like $2,500,000 per month. Taking the two systems together the result to the Pennsylvania Railroad Company (net earnings of the Eastern system plus the surplus or minus the deficit of the Western system) has been:

Year.		Year.	
1879	$934,362	1883	$1,592,213
1880	1,763,630	1884	1,737,475
1881	2,145,271	1885	1,227,053
1882	1,338,868	1886	1,391,974

making the gain over last year 13½ per cent., yet leaving the profit 20 per cent. less than in 1884.

For the four months ending with April the earnings and expenses of the lines east of Pittsburgh and Erie have been:

Year.	Gross earnings.	Expenses.	Net earnings.
1877	$9,184,566	$6,400,006	$2,784,560
1878	9,446,089	6,100,062	3,346,027
1879	10,312,564	6,104,785	4,208,779
1880	12,794,681	7,189,570	5,605,111
1881	13,889,508	8,069,704	5,819,804
1882	14,448,219	9,559,415	4,888,804
1883	15,892,707	10,161,893	5,730,814
1884	15,159,907	9,770,380	5,389,527
1885	13,693,490	9,438,565	4,254,925
1886	14,735,487	9,889,893	4,845,594

The gains over last year were:

	Gross earnings.	Expenses.	Net earnings.
Amount	$1,041,997	$451,328	$590,669
Per cent	7.5	4.8	12.2

The average monthly gain in net earnings until April had been $180,917, while in April the gain was but $47,916. Compared with 1884 there is a decrease of $424,420 in gross earnings and of $543,933 (10 per cent.) in net; and compared with 1883 the decrease is $1,157,220 in gross and $885,220 (15½ per cent.) in net. The net earnings were less than in any of the five years from 1880 to 1884.

The surplus or deficit of the company's system *west* of Pittsburgh and Erie for the four months has been:

1879	Surplus	$52,783	1883	Surplus	$401,022
1880	"	1,317,177	1884	Deficit	309,291
1881	"	1,410,111	1885	"	378,190
1882	"	7,271	1886	"	187,313

Thus the result on these lines, though better than last year and the year before, was worse than in any other reported.

Adding the surplus of the western system to and subtracting the deficit from the net earnings of the eastern system, we have as the company's income from the two systems for the four months:

1879	$4,261,562	1883	$6,134,836
1880	6,922,288	1884	5,080,236
1881	7,299,915	1885	3,876,835
1882	4,896,075	1886	4,658,281

The profit this year is thus $781,446 more than last year, which is about 0.8 per cent. on the stock outstanding, but it is less than in any other year since 1879, and the decreases from the most productive years are:

Since	1880.	1881.	1883.
Decrease	$2,264,007	$2,641,634	$1,473,555

Fortunately, in these years there was a great surplus over the dividends paid. The decrease since 1881 is equal to 3.4 per cent. on the stock then outstanding.

American Bonds in England.

The Economist, which is the great financial journal of England and one of the ablest newspapers of any kind in the world, makes the Illinois Central issue of 3½ per cent. bonds the text of an article on the "Appreciation in Value of American Railroad Bonds," which it illustrates by contrasting the issue price with the present price of several of the American bonds largely owned in England. The most striking illustration, perhaps, is that little more than ten years ago the Illinois Central itself placed its *six* per cent. bonds in London at the same price (101) as was obtained for the new 3½s. But it cites, also, the following

cases, giving the date the principal is due, issue price and the mean between the highest and lowest prices in each of the last eight years, as follows:

	B. & O. 1902.	Ill. Cen. 1895.	Lehigh Valley. 1923.	N. Y. Cen. 1903.	Penna. R. R. 1905.	United N. J. 1901.
Issue price	97	101	88	95½	90	98½
Mean price in—						
1886 (to date)	121⅛	116¼	133	123⅛	123	122⅛
1885	117⅛	114	126	120½	121	121⅛
1884	118	114	123⅛	120	119	121
1883	117⅛	113⅛	120⅛	120⅛	118⅛	119⅛
1882	120	114	117	122	118⅛	120
1881	116	115	118⅛	123⅛	120½	119
1880	116	114	113	119⅛	114⅛	116
1879	112	111⅛	105	116	104½	112⅛

These have long been considered choice bonds, and they have not risen in price, since 1879, nearly as much as many others in which confidence formerly was not so strong as it is now, as, for instance, the Northern Pacific first 6s., which only one year ago were selling at 104, and now bring 118¼; or, to go to older companies, Rock Island 6s of 1917, which have risen from 109 at the beginning of 1879 to 135; Northwestern 7s of 1902, from 104 to 140; Milwaukee & St. Paul 7s of 1902, from 104 to 135; Chicago & Alton sinking fund 6s of 1903, from 101 to 122½—all companies known to be solvent in 1879.

The Economist says that there are not yet more than a dozen American companies that have floated bonds at 5 per cent., but an examination of a list shows no less than 130 companies that have bonds bearing 5 or less than 5 per cent. It finds it startling that the new Illinois Central bonds should approximate so closely to the yield of the debenture stock of the best English systems, London & Northwestern debentures yielding now 3¼ per cent. "Now, it has been more or less a canon with investors, that if you wanted to leaven your holdings of secure English stocks so as to increase your total income without serious risk, you could not do better than invest in good American bonds, which were cheaper and practically as safe as are our debenture stocks. There has been a good deal of buying of this sort during late years, and under its influence the prices of good bonds have been steadily going up, until they have now reached a point at which it almost pays as well to purchase home debenture stocks." *The Economist* is so struck by this that it imagines that investors do not bear in mind in buying these American bonds far above par the fact that the principal will be paid within a limited period, and that therefore the percentage which the interest payments make on the purchase price is more than the interest which the bonds actually yield. It does not seem possible that such a mistake could be made, as, for instance, that a 6 per cent. bond, due in 1900, bought now at 120, should be supposed to yield 5 per cent. on its cost. Enough must first be deducted for a sinking fund which will amount to the 20 per cent. premium paid, which would require about $1.90 out of every $6 interest received at the above rates, making the actual rate of interest 4.1 instead of 5 per cent. In this country the broker would be very incapable who did not allow for that, and tables are published showing just what rate of interest is actually yielded by bonds bearing different rates of interest bought at different prices and due at different dates. But in England the debentures which take the place of our bonds are largely perpetual debentures, so that the yearly interest received divided by the price paid gives the actual rate of interest which the securities yield. *The Economist* finds that the bonds in the table above, allowing for this, yield only from 3.8 up to 4.2 per cent. on their present price.

The rise in the prices of American railroad bonds is largely due to a general fall in the rate of interest throughout the world, and partly, doubtless, to the conviction that some of these bonds are unquestionably secure, as much so as any similar European securities, and to a distrust in stocks, which has been growing for several years, which has led capitalists to compete with each other for the safer securities. The distrust of shares, however, is itself largely due to the general fall in the rate of interest, which, as we have said heretofore, makes itself felt in time in every business in which much capital is invested, and has to be borne wholly by the shares, where part of the capital is represented by bonds which have still several years to run.

A commission of delegates from the principal French railroad companies sailed from Havre for New York, May 22, charged with the duty of inspecting the leading railroads of the United States and studying the organization, construction and management of those lines. The New York Central & Hudson River Company has already placed a special train at the disposal of the delegates when they arrive in New York, to enable them to visit all points of interest on its line. The railroad question has recently been prominent in the French Parliament, a whole fortnight having been given to a discussion of freight rates.

The following distribution of the east-bound freight of the trunk lines was made by Mr. Fink recently, in accordance with the trunk-line agreement. The percentages under the old agreement are given also:

Roads.	New award.	Old award.
New York Central	29.6	35 92
Pennsylvania	22.5	26 07
Erie	18.0	21.92
Grand Trunk	7.8	8.76
Baltimore & Ohio	7.1	7 33
Lackawanna	7.5	.....
West Shore	7 5	.....
Total	100.00	100.00

Thus of the 15 per cent. which goes to the two new roads, 6.32 is taken from the New York Central, 3.92 from the Erie, 3.57 from the Pennsylvania, 0.96 from the Grand Trunk, and 0.23 from the Baltimore & Ohio. This reduces the New York Central's share 17½ per cent., the Erie's 17⅜, the Pennsylvania's 13¾, the Grand Trunk's 19 and the Baltimore & Ohio's 3 per cent. The four roads between New York and Buffalo get 62.6 per cent. of the whole now, and the two Buffalo roads formerly had 57.84 per cent. of the whole.

Recent negotiations on the part of the Central Traffic Association and the trunk lines with the Chicago & Atlantic, and the Wabash, give reason to hope that these companies will accept a share of the through traffic and coöperate with the other roads to maintain rates. Working outside of the Association, while the other roads kept well to the 25-cent rate, these roads have been able for some two months past to take an unusually large share of the east-bound traffic at a rate which yielded considerable profit. If things could remain as they are, they could probably do much better outside of than in the Association. But nothing is more certain than that things will not remain as they are if any railroad diverts a large share of their traffic from other roads by cutting the rates. They will meet the cut rates, and then in a very short time the entire profit on the business may be sacrificed. The total Chicago shipments being small now, a large percentage of them does not amount to much; and what the Wabash collects further south and west probably is much more than what the Chicago & Atlantic takes from Chicago, while a large part of the latter also goes by the Wabash.

Mr. Blanchard, Commissioner of the Central Association, has this week taken steps to form pools at the several smal places in Illinois where connections with Eastern roads are made by lines extending west of the Mississippi, to which a good deal of freight is taken, sometimes purposely to avoid the pooling points.

Flour shipments from the West continued to go by lake chiefly in the second week of May, as they did in the first week. Since lake navigation opened they have been, in barrels:

	Week ending— Apr. 24.	May 1.	May 8.	May 15.
By rail	174,626	124,484	85,394	82,534
Down Mississippi	11,965	10,796	7,028	12,118
By lake	59,061	39,731	132,738	117,923

The port of Duluth was open only during the last two of these weeks.

Lake rates from Chicago to Buffalo remained pretty steadily at 3½ cents per bushel for wheat and 3¼ for corn until the middle of last week, and then fell within two days to 2½ and 2¼. From Duluth the rate has been 3½ nearly all the time since the opening. More than 2,000,000 bushels of wheat were shipped from Duluth in the first two weeks after the opening.

Canal rates advanced in the first half of last week to 6¼ cents a bushel for wheat from Buffalo to New York, but fell last week to 6, and this week to 5¾ cents, which is high for the season.

The opening of the canal has had a marked effect on the New York wheat receipts, these having been 1,109,250 bushels in the week to May 15, while for the *twelve* weeks ending May 8 they amounted to only 1,093,044 bushels. There is also a large gain at Montreal, but not much elsewhere. New York and Montreal together received 84⅓ per cent. of the total seaboard wheat receipts in the week to May 15, the quantity being 1,349,919 bushels, while for the entire 19 weeks of this year ending May 15 the receipts were but 724,151 bushels at Philadelphia, and 847,568 at Baltimore. The fact that nearly all the wheat now on hand in the West is spring wheat, north of the district from which shipments are most commonly made to Baltimore and Philadelphia, keeps down their receipts of this grain. They receive a much larger share of the corn; in fact, in the week to May 15 Baltimore recieved a fourth more corn than New York, and New Orleans 2½ times as much.

In the four weeks since navigation opened, the grain shipments of the Northwestern markets have exceeded their receipts by more than 10,000,000 bushels, the receipts having been 13,004,236 bushels and the shipments 23,250,967. This is a very rapid reduction of the stocks on hand. The Northwestern wheat receipts in these four weeks were only 1,966,597 bushels, while the shipments were 7,806,650. The corn receipts meanwhile were 5,607,588 bushels, and the shipments 11,222,667. There is scarcely a week's supply of corn now in store in the Northwest, but there remains wheat enough for three times as great shipments as those of the four weeks to May 15.

Montreal gets the benefit of the higher rail rates this year, in the shape of larger grain receipts than before for several years, or at least a larger share of the total seaboard receipts. The grain naturally goes by the water routes to a greater extent than when the railroads were carrying it for 15 cents instead of 25 cents per 100 lbs. In the second week of May 47 per cent. of the total seaboard receipts arrived at New York, 15 per cent. at Montreal and 12⅔ per cent. at New Orleans, these places receiving chiefly by water, leaving but 25⅓ per cent. to Boston, Philadelphia, Baltimore and Richmond, which receive exclusively by rail.

There were but two weeks last year, one in May and one in October, when the Montreal receipts were as large as in the second week of this month, and there was no such week in 1884; but in 1883, when rail rates were better maintained, they were three times exceeded.

The recent purchases of English rails by the Michigan Central and the Chicago, Burlington & Quincy railroads are probably the cause why the Board of Trade report shows the British export of rails to the United States to have been larger last April than in any other April since 1882, and larger than in the whole year 1885. They cannot be called large, however, having been 6,836 tons, which is not more than two days consumption. Nevertheless, they were more than the British exports in that month to any other country except India, and more than one-fifth of the total exports, the exports to other countries being exceptionally small, and one-third less than last year. For the four months ending with April, the British exports have been:

Year.	To U. S.	To other countries.	To all countries.
1879	1,184	90,982	92,166
1880	62,391	109,451	171,842
1881	86,292	92,079	178,371
1882	88,921	159,788	248,709
1883	19,222	238,401	257,623
1884	8,647	168,857	175 504
1885	3,001	146,495	149,496
1886	8,672	106,908	115,580

Thus the total British rail exports for the four months ending with April have been smaller this year than in any other since 1879. The activity in railroad construction, which began here in the last half of 1879, did not appear in the countries which England supplies with rails until 1882; but while we reached our maximum construction in 1882, those countries did not reach their maximum until 1883, and for three more years took more rails than in any year before 1882. These countries other than the United States, several of which are supplied exclusively from England, including the British colonies, which, next to this country, are the greatest railroad builders, have this year taken 27 per cent. less rails than last year, 36 per cent. less than in 1884, and 55 per cent. less than in 1883. We must conclude, therefore, that this is a period of exceptionally little railroad construction outside of Europe and the United States, which supply themselves chiefly with rails, not depending upon English mills.

The Concord Railroad Company in New Hampshire is in the very unusual position of a railroad corporation which earns more than it can divide among its stockholders. The trouble with most companies is just the reverse—that they cannot earn enough to divide. The Concord company has no debt and no fixed charges beyond the payment of rentals on its leased lines, which they are abundantly able to earn. For the year ending with March last the report of the company shows a surplus over all rentals and other necessary payments of $302,169, or a trifle over 20 per cent. on its capital stock of $1,500,000. But the dividends are limited to 10 per cent., and so the company expended over one-half its surplus, or $152,315, in completing a new station at Concord, buying new equipment and making other additions to its property. This policy has been pursued for many years, so that the road has been very largely paid for out of the current income, and the company has a very valuable property on which the only liability is about $15,500 per mile on the road actually owned, taking no account of interest in the leased lines and in outside property—almost, if not quite, the lightest capital account in America.

Record of New Railroad Construction.

Information of the laying of track on new railroad lines is given in the current number of the *Railroad Gazette* as follows:

Pennsylvania.—A branch is completed from near Altoona, Pa., to the Tipton Run coal mines, 4½ miles.

St. Johns & Halifax.—Track laid from Ballstown, Fla. southeast to the Tomoka River, 40 miles.

Southern Pacific.—The *Northern Division* is extended from Soledad, Cal., south 2½ miles.

This is a total of 47 miles on 3 lines, making in all 853 miles thus far reported for the current year. The new track reported to the corresponding date for 15 years has been:

	Miles.		Miles.		Miles.
1886	853	1881	1,480	1876	542
1885	546	1880	1,519	1875	260
1884	913	1879	619	1874	436
1883	1,593	1878	407	1873	918
1882	3,203	1877	461	1872	1,557

These figures include *main track only*, second or other additional tracks and sidings not being counted.

NEW PUBLICATIONS.

An illustrated fortnightly paper, the *Indian Engineer*, has been lately started in Calcutta, and is a very creditable specimen of newspaper enterprise, containing two double page and several other illustrations, 20 pages of reading matter, and 12 pages of advertisements.

We notice with some satisfaction that the narrow-gauge (one metre, or 3 ft. 3⅜ in.) adopted on the score of economy in some parts of India has not been found to confer sufficient advantages to compensate for its many shortcomings, and the *Indian Engineer* observes *apropos* of the approaching change of gauge in our Southern states that a similar unification of gauge is impending in India. As the *Railroad Gazette* was alone among technical journals in exposing the fallacies of the advocates of narrow gauge, it is satisfactory to find that in the two countries, the United States and India, where it has been most extensively tried, the narrow gauge has been found wanting when tested by actual results in construction and working.

A larger experience with the peculiar conditions prevailing in India has enabled a large reduction to be made in the cost of construction. According to the *Indian Engineer*, the last section of the Nizam's State Railway, 87 miles long, has just been completed in two years at a cost of 66,000 rupees per mile, equal to about $23,000 dollars in gold. The older portion of the line cost 114,000 rupees per mile. The increasing consumption of cheap native coal in the locomotives has also reduced working expenses. In 1884 half the total amount of fuel

consumed by the railroads was mined in India; wood formed one-quarter of the total weight, and the balance was coal imported from England. The average price of the latter at Bombay was equal to $6.17 per gross ton, while the cost of Indian coal in different localities varied from 85 cents to $3.24 per ton, all values being in gold. Several seams of good coal have been discovered lately.

The credit of Indian railroads is good, a new line, the Southern Mahratta, having had a large issue of 4 per cent. debentures subscribed for several times over at the price of 107. The prospect of considerable further railroad extensions in India seems bright, and it is expected that many new lines will be shortly built by private enterprise.

THE SCRAP HEAP.

Blowing Up a Train.

A dispatch from Nashville, Tenn., May 26, says: "Details of the terrific explosion of 100 kegs of powder at Soddy coal mines, near Chattanooga, on Monday have been received. One of the locomotives of the company was going from the railroad station to the mines with the powder in charge of William Lloyd and David Harper. The locomotive was running at a rapid rate when a keg of powder was overturned and the contents scattered in the car. The next moment a spark from the engine ignited the powder and the explosion followed. Three seconds after the spark fell every keg of powder had exploded and three mangled human bodies lay 50 ft. away, down the embankment. The effect of the explosion was frightful. The locomotive and two flat cars were torn to atoms, and some portions of them were hurled hundreds of yards. When the explosion occurred a miner named Ike Ramsey was standing near the track waiting for the train to pass. He, together with Lloyd and Harper, were thrown down the embankment, and when found, all were in a dying condition. All died at midnight.

Car Doors Must be Shut.

An order has been issued by the Erie instructing all conductors to see that freight and stock car doors are securely fastened. The matter is pronounced of great importance, and conductors will be held responsible for its observance. It is probably the result of a verdict for $25,000 recently obtained for injuries inflicted by an unfastened door crashing into a sleeping car and striking a passenger.

Attempt at Train Wrecking.

A dispatch from Springfield, Mass., May 22, says: "A desperate attempt was made to wreck express trains on the New York, New Haven & Hartford Railroad last night by placing ties and rails on the tracks in this city. The obstructions were struck by two express trains, but no damage was done. Had the trains been thrown off they would probably have gone into the Connecticut River."

How Mr. White Stopped the Train.

The 2 o'clock in the morning up train on Third avenue elevated got up to 47th street yesterday and stopped as if it were going to stop there all night. All hands got out to investigate. They found that a citizen had gone peacefully to sleep upon the dark upper end of the station, leaning against the north side guard rail and hanging his legs down over the platform. The ticket seller and gateman didn't know he was there, and neither did anybody else until the engine passed him and the train pinned him. Then he woke up, but he wasn't a bit excited.

"Be'r gemme out o' here now," he said. "Train can' g'wan' long's I'm here."

The engineer got under the platform with a lantern and twisted one of the man's legs around so that the foot bore north and south. Then plump Conductor Smith hauled on that leg and extracted it at some peril of splitting the man in two. The same process was adopted with the other leg, and the citizen got up and stood erect.

"S'oll ri'," he said, waving his hand, "g'wan' wi'r train."

The train had 10 minutes to make up, and she just spun along, leaving him there. He said he was James White, of 400 East 125th street.—*New York Sun.*

Rich Travelers.

The other day, while a Michigan Central train was waiting at St. Thomas, a young man of 25 was observed to be closely regarding a solid-looking old gent of 50 who had come through from Chicago. Finally the young man stepped up and inquired:

"Isn't this Mr. B——, of Chicago?"

"Yes, sir."

"I am Mr. J——, formerly of the same place, but now of Toronto. Do you remember me?"

"Really, but I do not."

"I was a clerk in your pork house. I aspired to the hand of your daughter. You drove me hence because I had no ducats."

"Oh, yes, it seems as if I do recall something of the sort."

"Well, sir, I want you to understand that you made a mistake. I am now worth $18,000 and could give your daughter every luxury."

"Eighteen thousand dollars, eh? That's quite a sum."

"Yes, sir, and I'm the man you drove hence."

"Eighteen thousand dollars," mused the old gent. "What a curious coincidence! That's exactly the sum my daughter's husband gave her the other day to buy summer pug dogs with! I must jot this coinncidence down."

Somebody held the young man up until the weakness left his knees a little, and then he went hence some more.—*Detroit Free Press.*

A Tale of a Pig.

Railroad circles in New Jersey are agitated, and a war between two heretofore friendly connecting trunk lines is threatened, all on account of a pig. The pig was brought to a station on the C. & D. road by a shipper of the Hibernian persuasion, who desired to send it to a friend at a station on the A. & B. As the pig was young and of a lively disposition, and the C. & D. agent did not care to send a whole stock car for its accommodation, he suggested that the shipper put it in a box. This was done and the pig was duly forwarded duly way-billed as "one pig," with costs and charges carefully calculated on the basis of the accepted tariff for swine. The pig arrived in due season, was delivered to the consignee and (presumably) welcomed to congenial quarters. But all was not well. The acute eye of the Auditor of the A. & B. perceived a discrepancy, and the way bill and other documents were promptly returned to the C. & D. for correction, on the ground that the freight had been forwarded at too low rates; it was *not* a pig, but an "animal in a cage," and should have been classed accordingly. In vain the station agent and all the other officials of the C. & D. represented that the consignment was no wild beast or menagerie animal, but simply the harmless domestic pig—the Auditor of the other road, stern in his conscious rectitude, adhered firmly to his position that a pig in a box was not a pig, but an animal in a cage. A total disruption of friendly relations is not impossible, but there is still hope that such a result may be averted, and there are rumors that the Joint Western Classification Committee, the Central Traffic Association, the New England Clearing House and the Trunk Line Presidents may be called in as arbitrators, as the importance of the case seems to demand.

General Railroad News.

MEETINGS AND ANNOUNCEMENTS.

Meetings.

Meetings of the stockholders of railroad companies will be held as follows:

Chicago, Milwaukee & St. Paul, annual meeting, at the office in Milwaukee, Wis., June 5, at noon.

Chicago & Northwestern, annual meeting, at the office in Chicago, June 3.

Chicago, St. Paul, Minneapolis & Omaha, annual meeting, in Hudson, Wis., June 5.

Gulf, Colorado & Santa Fe, special meeting, at the office in Galveston, Tex., June 14.

Milwaukee, Lake Shore & Western, annual meeting, in Milwaukee, Wis., June 9.

St. Louis, Alton & Terre Haute, annual meeting, at the office in St. Louis, June 7.

St. Paul & Duluth, annual meeting, in St. Paul, Minn., June 21.

Ulster & Delaware, annual meeting, at the office in Rondout, N. Y., June 9.

Dividends.

Dividends on the capital stocks of railroad companies have been declared as follows:

Delaware & Hudson Canal Co., 1¼ per cent., quarterly, payable June 15, to stockholders of record on May 27.

Lehigh Coal & Navigation Co., 2½ per cent., semi-annual, payable June 11, to stockholders of record on May 31.

New York & New England, 3½ per cent., on the new preferred stock, payable as soon as certain legal difficulties shall be adjusted.

Railroad and Technical Conventions.

Meeting and conventions of railroad associations and technical societies will be held as follows:

The *Master Car-Builders' Association* will hold its annual convention at Niagara Falls, beginning on Tuesday, June 8.

The *American Train Dispatchers' Association* will hold its annual convention in Chicago, beginning on Tuesday, June 8.

The *Yardmasters' Mutual Benefit Association* will hold its annual convention in St. Paul, Minn., beginning on Wednesday, June 9.

The *Master Mechanics' Association* will hold its annual convention in Boston, beginning on Tuesday, June 15.

The *Car Accountants' Association* will hold its annual convention in Buffalo, N. Y., beginning on Tuesday, June 15.

Foreclosure Sales.

The *East Tennessee, Virginia & Georgia* road was sold in Knoxville, Tenn., under the decree of foreclosure of the general mortgage, and was bought by the company for $1,250,000, by Mr. E. F. Hyde, of New York, agent for the purchasing committee. The sale included the entire property of the company, subject to the prior first-mortgage liens of certain divisional bonds, as we have heretofore noted. It is understood that the reorganization plan will be carried through without much delay, as it is thought that an agreement has been reached with the dissenting holders of stock and income bonds.

The *Denver & Rio Grande* road will be sold under foreclosure on July 12 next in Denver, Col., under the decrees of foreclosure granted by the United States Circuit Court at the suit of the trustee. The sale will include the entire line with its branches, as prescribed in the several mortgages. It will be sold subject to the mortgage of April 13, 1871, known as the first mortgage. The purchaser will be required to pay $50,000 in cash at the time of sale, and such further amount in cash as the Court may require, the balance to be payable either in money or in bonds of the consolidated issue. The Receiver will remain in charge of the property until the sale is finally confirmed by the Court and a conveyance ordered.

The *Beech Creek, Clearfield & Southwestern* road will be sold under foreclosure on June 4 next. Arrangements have been made for its purchase by the stockholders and for the organization of a new company.

Transportation in Congress.

In the Senate on the 20th:

The Staten Island (Baltimore & Ohio) Bridge bill was taken up.

Mr. McPherson (New Jersey), offered an amendment providing for a tunnel instead of a bridge.

Mr. Frye (Maine) read a long communication showing that the tunnel plan had been carefully considered and abandoned as impracticable.

After some further debate, Mr. McPherson's amendment was rejected and the bill passed the Senate. It now goes to the House.

In the Senate on the 26th:

The bill to subject railroad land grants to state and local taxation was taken up and discussed, but no action was taken. Several amendments were offered.

Brotherhood of Railroad Brakemen.

A dispatch from Galesburg, Ill., May 26, says: "The Grand Lodge of the Brotherhood of Railroad Brakemen, Grand Master L. E. Wilkinson presiding, is in session here, and has just expelled 26 of its members for originating the strike on the Union Pacific Railroad, and has suspended 30 more for 90 days for participating. The Grand Lodge is now considering the cases of those members who took part in the Missouri Pacific strike, and intends to expel those who destroyed or injured property. Grand Master Wilkinson says the Brotherhood does not sanction strikes, but discourages them."

ELECTIONS AND APPOINTMENTS.

Ashland Coal & Iron Railway Co.—At the annual meeting in Ashland, Ky., May 19, the following directors were chosen: John Means, Douglas Putnam, Jr., Ashland, Ky.; George N. Biggs, Frankford, W. Va.; A. S. Winslow, Cincinnati, O.; John G. Peebles, Portsmouth, O.; James M. Bailey, Pittsburgh, Pa. The board elected John Means President; John G. Peebles, Vice-President; Douglas Putnam, Jr., Superintendent; Robert Peebles, Secretary and Treasurer.

Atlantic & Pacific.—At the annual meeting in Boston, May 20, the old directors were re-elected, as follows: Wm. P. Buckley, Isaac T. Burr, B. P. Cheney, Walter L. Frost, Bryce Gray, C. P. Huntington, A. W. Nickerson, Henry C. Nutt, Jesse Seligman, George O. Shattuck, Wm. B. Strong, Levi C. Wade, Edward F. Winslow.

The board subsequently re-elected H. C. Nutt, President; E. F. Winslow, First Vice-President; W. B. Strong, Second Vice-President; H. W. Gardiner, Secretary and Treasurer; D. L. Gallup, Auditor, D. B. Robinson, General Manager.

Baltimore & Hanover—At the annual meeting in Hampstead, Maryland, May 20, the following officers were re-elected: President, A. W. Eichelberger; directors, W. H. Vickery, L. F. Melsheimer, C. W. Slagle, W. E. Hoffman, Stepmen Keefer, C. C. Wooden. The following officers were elected by the board: Vice-President, W. H. Vickery; Treasurer, R. M. Wirt; Secretary, L. F. Melsheimer.

Boston, Concord & Montreal.—At the annual meeting in Plymouth, N. H., May 24, the following directors were chosen: Nathan H. Weeks, Plymouth, N. H.; Harry Bingham, Littleton, N. H.; Lewis C. Pattee, Lebanon, N. H.; Noah S. Clark, Manchester, N. H.; Samuel S. Kimball, Edward H. Rollins, Concord, N. H.; Charles E. Morrison, Boston. This is almost entirely a new board, Mr. Weeks being the only director re-elected.

The leased and controlled lines elected officers as follows: *Meredith & Conway.*—J. Wentworth, President; B. H. Corning, Clerk. *New Zealand River.*—J. J. Cilley, President; S. N. Bell, Clerk. *Pemigewassel Valley.*—J. Thomas Vose, President; Daniel Barnard, S. N. Bell, J. W. Campbell, Henry Chandler, J. J. Cilley, John C. French, Nathan H. Weeks, directors. *Whitefield & Jefferson.*—N. R. Perkins, President; Samuel N. Bell, Clerk.

Chicago, Burlington & Northern.—The office of Mr. George Hargreaves, Purchasing Agent, is now at St. Paul, Minn., where all communications should be addressed.

Chicago, St. Louis & Pittsburgh.—Mr. D. T. McCabe, now General Western Agent, will, it is stated, on June 1 assume the office of Assistant General Freight Agent in place of Mr. F. H. Kingsbury, transferred.

Concord.—At the annual meeting in Concord, N. H., May 25, the following directors were chosen: James W. Johnson, Enfield, N. H.; Walter M. Parker, Frederick Smyth, Manchester, N. H.; Benjamin A. Kimball, Josiah Minot, John H. Pearson, John A. White, Concord, N. H. The board elected Frederick Smyth President; Wm. M. Chase, Clerk.

Flint & Pere Marquette.—At the annual meeting in East Saginaw, Mich., last week, the old directors and officers were re-elected.

Fremont, Elkhorn & Missouri Valley.—At the annual meeting in Norfolk, Neb., May 21, the old officers and directors were re-elected. The road is owned by the Chicago & Northwestern.

Georgia Railroad & Banking Co.—At the annual meeting in Augusta, Ga., May 12, the following were elected: President, C. H. Phinizy; directors, J. H. Alexander, J. A. Billups, A. W. Calhoun, Thomas W. Coskery, John Davison, J. S. Hamilton, H. H. Hickman, George Hillyer, N. L. Hutchins, H. D. McDaniel, Ferdinand Phinizy, W. M. Reese, Josiah Sibley, D. N. Speer, M. P. Stovall, Stephen Thomas.

Kansas City, Memphis & Birmingham.—Capt. A. W. Gloster has been appointed Principal Assistant Engineer of the Western Division, with office in Memphis, Tenn. His assistants in charge of surveying parties in the field are Messrs. T. S. Newcomb, C. H. Jones and Turner. Mr. Frank Matthews has charge of the Memphis office.

Kentucky Railroad Commission.—The Governor of Kentucky has appointed Messrs. J. Pinkney Thompson, John D. Young and I. A. Spalding Railroad Commissioners. Mr. Spalding succeeds Mr. A. R. Boone, deceased; the others are reappointed.

Louisville, New Albany & Chicago.—Mr. A. J. O'Reilly is appointed General Agent in Chicago in place of Mr. Frank Pierce, who is transferred to Mr. O'Reilly's former position as General Southern Agent, with office in Louisville.

Louisville, New Orleans & Texas.—Mr. M. Burke having resigned, the office of Superintendent is abolished.

Manchester & Keene.—At the annual meeting in Keene, N. H., last week, the following directors were chosen: William W. Bailey, John H. Buttrick, George Clough, B. F. Kendrick, C. S. Mellen, H. N. Turner, W. F. Simonds. The board elected William W. Bailey President; J. W. Fellows, Clerk.

Marietta & North Georgia.—At the annual meeting in Marietta, Ga., May 19, the following directors were chosen: J. B. Blackwell, J. B. Glover, N. L. Osborne, W. M. Sessions, Marietta, Ga.; R. J. Lowry, Atlanta, Ga.; M. E. Post, Cheyenne, Wyoming; George F. Newell, R. M. Pulsifer, Boston; E. C. Machen, New York.

Mississippi & Tennessee.—Mr. M. Burke has been appointed Superintendent, with office in Memphis, Tenn. He was formerly Superintendent, but has for some time past been on the Louisville, New Orleans & Texas road.

Missouri, Kansas & Texas.—At the annual meeting last week the following directors were chosen: C. H. Pratt, Humboldt, Kan.; H. C. Cross, Emporia, Kan.; David Kelso, Parsons, Kan.; H. M. Hoxie, St. Louis; Frederick L. Ames, Boston; Sidney Dillon, A. G. Dulman, Thomas T. Eckert, George J. Forrest, George J. Gould, Jay Gould, R. M. Galloway, A. L. Hopkins, N. L. McCreery, Russell Sage, Samuel Sloan, New York.

Missouri Pacific.—It is reported that Mr. W. H. Newman, now General Traffic Manager, is to be made Third Vice-President, an office which has been vacant since the retirement of Mr. R. S. Hayes.

Mobile & Ohio.—The following order from Vice-President and General Manager T. M. R. Talcott is dated Mobile, Ala., May 17: "1. Major E. S. Hosford, on March 19 last, resigned the position of Superintendent of the Northern Division of the Mobile & Ohio Railroad, to take effect at such time as it might be convenient to relieve him, and his resignation has been accepted.

"2. Mr. Charles Hamilton has been appointed Superintendent of the Northern Division of the Mobile & Ohio Railroad, in addition to his duties as Superintendent of the St. Louis & Cairo Railroad, and will be respected accordingly. Mr. Hamilton will relieve Major Hosford and assume charge of the division as soon as the transfer can be properly made.

Montpelier & Wells River.—At the annual meeting in Montpelier, Vt., May 27, the old board was re-elected, with the following officers: D. R. Sortwell, President; S. S. Thompson, Vice-President; Joel Foster, Secretary and Treasurer; W. A. Stowell, Superintendent.

New York, Lake Erie & Western.—Mr. Charles W. Douglas is appointed Superintendent of the New Erie Express, Eastern Division, in place of Mr. E. A. Wells, who declines the appointment on account of ill health.

Ohio River.—At a meeting held in Parkersburg, W. Va., May 16, the following directors were chosen: W. N. Chancellor, R. J. McCandlish, D. R. Neal, George W. Thompson, Parkersburg, W. Va.; W. F. Peterson, Wheeling, W. Va.; Septimus Hall, New Martinsville, W. Va.; Robert H. Browse, Graper Island, W. Va.; C. Sehon, Point Pleasant, W. Va.; Robert S. Brown, Ravenswood, W. Va. The board elected George W. Thompson President in place of

D. R. Neal, who declined a re-election; W. N. Chancellor, Vice-President and Secretary.

Pacific Mail Steamship Co.—At the annual meeting in New York, May 26, the following directors were chosen: Jay Gould, Henry Hart, J. B. Houston, C. P. Huntington, Edward Lauterbach, Wm. Remsen, Russell Sage, J. W. Shaw. This is the old board.

Pennsylvania.—It is stated that Mr. F. H. Kingsbury now Assistant General Freight Agent of the Pittsburgh, Cincinnati & St. Louis, will on June 1 assume the new position of Through Freight Agent of the Pennsylvania Railroad, with headquarters in New York.

Pittsburgh, Cincinnati & St. Louis.—Mr. D. T. McCabe is appointed Assistant General Freight Agent in place of Mr. F. H. Kingsbury, transferred.

St. John & Halifax.—The officers of this new road are: U. J. White, President; S. B. White, Vice-President; W. H. Chandler, Secretary and Treasurer; E. S. Spencer, General Freight Agent. Headquarters, San Mateo, Florida.

St. John & Maine.—At the annual meeting in London, England, May 11, the following directors, whose terms then expired, were re-elected: D. W. Hill, W. J. Stride, George Wedd.

St. Paul Union Depot Co.—This company has elected E. W. Winter, President; J. T. Odel, Vice-President; H. P. Upham, Treasurer; C. D. Brunson, Secretary and Superintendent.

Talbotton.—At the annual meeting in Talbotton, Ga., recently, the following directors were chosen: E. L. Bardwell, W. K. Dennis, R. Leonard, J. H. Martin, W. H. Martin.

United New Jersey.—At the annual meeting in Trenton, N. J., May 25, the following directors were elected: John Jacob Astor, John C. Barron, Joseph D. Bedle, William Bucknell, Alfred L. Dennis, Charles E. Green, F. Wolcott Jackson, Robert Lenox Kennedy, Thomas C. McKeon, Robert Stockton, Samuel Welch, Thomas Oakes.

Washington & Ohio.—A Toledo dispatch says that Mr George S. Bradbury, late General Manager of the Peoria, Decatur & Evansville road, will be appointed Receiver of this road in place of Mr. J. A. Latcha, resigned.

West Shore.—Mr. Lucien Smith has been appointed Assistant General Freight Agent in place of Mr. Theodore L. Pomeroy, who will take charge of the West Shore and the Hoosac Tunnel fast freight lines.

PERSONAL.

—Mr. Eli Garrett, Secretary and Treasurer of the Edgemoor Iron Co., died suddenly at his residence in Wilmington, Del., May 25.

—Mr. George L. Bradbury, recently General Manager of the Peoria, Decatur & Evansville road, has, it is announced, declined the position of President of the Lake Erie & Western Co., which was offered to him.

—Mr. Charles Crocker, Vice-President of the Southern Pacific Co., who was recently thrown from his carriage in New York and seriously injured, has sufficiently recovered to leave the house and expects shortly to be able to return to work.

—Mr. Gustavus A. Nicolls, for many years connected with the Philadelphia & Reading road as Engineer, Superintendent and Vice-President, died at his residence in Reading, Pa., May 18, aged 69 years. A more extended notice will be found elsewhere.

—Mr. Richard P. Morgan, Jr., of Dingal, Ill., has closed his connection with the Texas & St. Louis Railroad, by mutual agreement with the Bondholders' Committee, by whom he was engaged for the management of the work of standard-gauging that road.

—Mr. Leavitt Burnham, for a number of years past Land Commissioner of the Union Pacific Co., has resigned his position, to take effect June 1. It is reported that Mr. Burnham retired on account of the differences of opinion as to the proper management of the land department.

—Mr. E. A. Touzalin, President of the Chicago, Burlington & Northern Co., and formerly Vice-President of the Chicago, Burlington & Quincy and of the Atchison, Topeka & Santa Fe, was married in Washington, May 24, to Miss Lida Miller, daughter of Mr. Justice Miller, of the United States Supreme Court.

—It is stated by authority that Mr. Thomas J. Potter, Vice-President of the Chicago, Burlington & Quincy Co., does not intend to leave that company, and has not accepted the position of President of the Cleveland, Columbus, Cincinnati & Indianapolis Co., which it was reported has been offered to him.

—General Durbin Ward, who died in Lebanon, O., May 22, aged 67 years, was principally known in his own State as a soldier and a politician. He was a lawyer of good standing, and was at one time counsel for the Atlantic & Great Western, and for its successor the New York, Pennsylvania & Ohio Co.

—Mr. J. A. Latcha has resigned his office as Receiver of the Michigan & Ohio road to accept a position in connection with the new Croton Aqueduct in New York. Mr. Latcha had charge as Chief Engineer of the building of the New York, Chicago & St. Louis and the Michigan & Ohio roads, and has been connected with other important works.

—Mr. Royall W. Merrill, formerly of the Boston *Advertiser*, and more recently of the Philadelphia *Press*, *North American* and *Times*, has become attached to the *Railway News*, of Philadelphia. Mr. Merrill has given special attention to railroad matters throughout his career as a journalist, and has been a valued contributor to the *Railroad Gazette*.

—Mr. Benjamin A. Clooney died at his residence in New York, May 24. He was born at Cold Spring on the Hudson in 1847, and in early life learned the trade of machinist at the West Point Foundry. He removed to New York City in 1868 and obtained a position with the New York Car Spring Co. Some time afterwards he formed a partnership with Mr. F. H. Andrews and they succeeded to the business of that company, which increased rapidly, until in 1882 the firm of Andrews & Clooney purchased the Globe Iron Works in West 33d street, where they have since carried on an extensive business. Mr. Clooney had been unable to take any active part in the business for some time past, owing to continued ill health, and only a short time before his death had returned from Florida, where he spent the winter. Mr. Clooney was a prominent Mason, having been twice elected Master of Atlas Lodge, and he was buried with Masonic ceremonies.

—Mr. P. L. Cable, of Rock Island, Ill., died suddenly, May 22, while on a visit to a ranch which he owned near San Antonio, Tex. Mr. Cable was born in Athens, O., in 1817, and studied law. After practicing in that place and in Georgetown, Ky., for a number of years he removed to Rock Island in 1856. Some years later, however, Mr. Cable gave up law and turned his attention to coal mining, purchasing the property of the Coal Valley Mining Co., whose operations he largely extended. He was President and the chief owner of the Rock Island & Peoria and of the Rock Island & Mercer County roads, which he was chiefly instrumental in building, and was also a very large stockholder in the Chicago, Rock Island & Pacific Co. Mr. Cable accumulated in coal mining and railroad operation a fortune which is estimated at about $2,000,000. He was uncle to Mr. R. R. Cable, now President of the Chicago, Rock Island & Pacific Co. Mr. Cable had considerable public spirit and contributed largely to the construction of the Rock Island Water Works, and also gave many donations for educational and other public purposes.

TRAFFIC AND EARNINGS.

Railroad Earnings.

Earnings of railroad lines for various periods are reported as follows:

	1886.	1885.	Inc. or Dec.	P. c.
Four months to April 30:				
Balt. & Potomac.	$410,587	$445,487	D. $34,900	7.8
Net earnings...	148,831	172,134	D. 23,303	13.6
Buf., N. Y. & Ph.	760,754	678,467	I. 82,287	12.1
Net earnings...	130,129	123,758	I. 6,371	5.1
E. Ten., Va. & G.	1,286,817	1,340,878	D. 54,061	4.1
Net earnings...	335,929	340,698	D. 4,769	1.4
Mobile & Ohio...	587,130	683,559	D. 98,429	14.4
Net earnings...	113,323	142,173	D. 28,850	20.3
N. Y., Sus. & W.	332,527	320,600	I. 11,927	3.7
Norfolk & West..	985,561	852,436	I. 133,125	15.6
Net earnings...	392,329	330,761	I. 61,568	18.6
Northern Central.	1,702,628	1,726,635	D. 24,007	1.4
Net earnings...	656,427	723,724	D. 67,297	9.3
Pennsylvania.....	14,735,487	13,693,490	I. 1,042,997	7.6
Net earnings...	4,815,594	4,254,925	I. 590,669	....
Three months to March 31:				
Ch., C., C. & I..	$855,814	$813,070	I. $42,744	5.3
Louisv. & Nash..	3,203,221	3,535,573	D. 332,352	9.4
Net earnings...	1,150,688	1,438,170	D. 287,482	19.9
N. Y., Ont. & W..	256,134	394,499	D. 138,365	35.1
Net earnings...	6,191	15,289	D. 9,098	59.5
Oreg. Short Line.	389,606	368,681	I. 80,925	28.2
Net earnings...	76,812	46,105	I. 30,707	66.7
Southern Pac. Co.:				
Atlantic System	2,028,650	2,009,978	I. 18,672	0.9
Net earnings..	501,665	778,845	D. 277,180	35.6
Pacific System..	4,845,089	4,722,472	I. 122,617	2.6
Net earnings.	2,310,869	2,100,557	I. 210,312	10.0
Month of March:				
Ch., C., C. & I..	$277,561	$276,054	I. $1,507	0.5
Louisv. & Nash..	1,103,934	1,281,516	D. 177,582	13.8
Net earnings...	395,031	576,332	D. 181,301	31.5
Oreg. Short Line.	17,024	117,671	I. 54,353	43.9
Net earnings...	62,470	21,447	I. 41,023	191.7
So. Pacific Co.:				
Atlantic system.	627,120	692,108	D. 64,988	9.4
Net earnings..	89,686	276,143	D. 186,457	67.6
Pacific system..	1,782,002	1,583,230	I. 198,772	12.6
Net earnings.	823,235	606,954	I. 216,281	35.6
Month of April:				
Balt. & Potomac.	$109,183	$130,336	D. $21,153	16.3
Net earnings...	37,979	55,911	D. 17,932	32.0
B., N. Y. & Phila.	214,676	182,557	I. 32,119	17.5
Net earnings...	40,334	42,585	D. 2,247	5.2
E. Ten., V. & Ga.	277,376	276,698	I. 678	0.2
Net earnings...	27,225	43,821	D. 16,596	37.7
Mobile & Ohio....	128,068	128,428	D. 360	0.3
Net earnings...	12,125	*5,875	I. 18,000	....
N. Y., Sus. & W..	87,316	90,332	D. 3,016	3.3
Norfolk & West..	267,559	206,484	I. 61,075	29.6
Net earnings...	109,399	69,323	I. 40,076	57.8
Northern Cen....	411,397	450,010	D. 38,613	8.6
Net earnings...	140,641	190,768	D. 50,127	26.2
Pennsylvania	3,862,617	3,704,890	I. 157,727	4.3
Net earnings...	1,320,864	1,272,948	I. 47,916	3.8
Tol., A. A. & N. M.	20,705	20,563	I. 142	0.7
Second week in May:				
Ch., St. P., M. & O.	$99,800	$106,900	D. $7,100	6.6
Ill. Central.....	181,900	198,887	D. 16,987	8.5
Iowa lines.....	29,900	30,959	D. 1,059	3.4
Long Island.....	51,019	49,258	I. 1,761	3.5
Mil. & Northern.	10,755	10,620	I. 135	1.3
Third week in May:				
Buff., R. & Pitts.	$10,592	$19,849	D. $9,257	46.7
Canadian Pacific.	184,000	121,000	I. 63,000	52.1
Chi. & Alton....	155,464	155,760	D. 296	0.2
Chi., Mil. & St. P.	404,000	412,226	D. 8,226	2.0
Chi. & Nor'west.	464,700	437,500	I. 27,200	6.2
C., I., St. L. & C.	45,771	44,200	I. 1,571	3.6
Louisv. & Nash..	249,810	254,970	D. 5,160	2.0
Mil., L. S. & W..	39,140	21,665	I. 17,475	80.5
Oreg. R. & N.....	100,592	66,406	I. 34,186	51.5
St. P. & Duluth.	26,585	19,184	I. 7,401	38.9
St. L. & S. F.....	79,500	75,500	I. 4,000	5.3
Wab., St. L. & P..	221,000	190,000	I. 31,000	16.3

* Deficit.

Weekly earnings are usually estimated in part, and are subject to correction by later statements. The same remark applies to early statements of monthly earnings.

Cotton.

Cotton movement for the week ending May 21 is reported as follows, in bales:

	1886.	1885.	Inc. or Dec.	P. c
Interior markets:				
Receipts.....	18,140	6,933	I. 11,207	162.6
Shipments.....	43,700	13,593	I. 30,107	221.4
Stock, May 21.....	174,496	64,285	I. 110,211	171.4
Seaports:				
Receipts.....	26,447	7,429	I. 22,018	299.0
Exports	47,380	27,009	I. 20,371	75.4
Stock, May 21.....	566,069	464,861	I. 131,208	28.2

The total movement from plantations for the crop year to May 21 is estimated at 6,322,308 bales, against 5,559,185 last year, 5,575,626 in 1883–84 and 6,777,702 in 1882–83.

Coal.

Coal tonnages for the week ending May 15 are reported as follows:

	1886.	1885.	Inc. or Dec.	P. c.
Anthracite.....	590,613	587,460	I. 3,153	0.5
Eastern bituminous....	146,597	244,349	D. 97,752	40.1
Coke.....	63,946	46,411	I. 17,535	37.8

The anthracite market is quiet and dull. This is, without doubt, partly due to the very large shipments of the first quarter of the year, which overstocked the market. An increased demand from the blast furnaces is reported.

A dispatch from Huntington, Pa., says: "It is believed that the strike of the soft coal miners in the Clearfield District will be over in a few days, and that all, or nearly all, the men will return to work at the old rates. The resumption in the Cumberland District at 40 cents a ton, which was the price paid to all the soft coal miners in this section of the country, and their failure to get the advance of 10 cents, seems to have disheartened the men in the whole Clearfield region, and a conference between the miners and operators is announced to be held at Tyrone to-morrow. The miners, it is thought, will go to work at the old rates if they are assured that the strikers will be blacklisted. They will also demand just weight and request the abolishing of the company stores. Representatives of leading operators assert their willingness to resume on the conditions named by the miners, and will attend the conference with the hope of effecting a settlement at once." The conference resulted as expected.

Cumberland shipments for the week ending May 15 were 981 tons. Total to May 15 this year, 376,679; last year, 938,036; decrease, 561,357 tons, or 59.8 per cent.

Pennsylvania Railroad coal tonnage for the week ending May 22 was:

	Coal.	Coke.	Total.	1885.
Line of road.....	107,202	84,610	191,812	207,066
From other lines.....	90,011	727	90,738	74,813
Total.....	197,213	85,337	282,550	281,879
Year to May 15.....	4,299,706	1,176,753	5,476,459	5,127,259

Increase for the week, 671 tons, or 0.2 per cent.; increase for the year, 349,200 tons, or 6.8 per cent.

Cumberland coal shipments for the week ending May 22 were 22,372 tons. Total to May 22 this year, 399,051; last year, 938,036; decrease, 538,985 tons, or 57.6 per cent.

Trunk Line Passenger Meeting.

A joint conference was held in New York, May 26, of the Trunk Line Passenger Committee and the Central Traffic Association. All of the trunk line members attended, and of the other gentlemen there were present E. A. Ford, of the Pennsylvania Co.; George H. Daniels, Assistant Commissioner of the Central Traffic Association; E. A. Clark, of the New York, Pennsylvania & Ohio; W. P. Johnson, of the Lake Shore & Michigan Southern; O. W. Ruggles, of the Michigan Central; William Edgar, of the Grand Trunk; C. K. Lord, of the Baltimore & Ohio, and B. F. Horner, of the Nickel Plate.

E. A. Ford presided. The conference took up the code of rules in use by both committees, with a view of unifying them for inter-territorial business. Among the matters discussed were a uniform method of dealing with the excursion business passing from the territory of one road into that of another; the methods of doing theatrical business, and the issuing of continuous train and time tickets and round trip tickets. In all these cases rates were agreed upon, and the rules modified and adjusted accordingly. The conference was to meet again the following day and discuss the matter of commissions.

Trunk Line Meeting.

The meeting of the Trunk Line Presidents and officers of the western connections in New York last week was private, but was, it is understood, harmonious. The western roads signified their intention to agree on a basis to be discussed in a short time by which freight rates will be made uniform. Resolutions were adopted confirming the Central Traffic Association and putting it on a better basis than before.

Indianapolis Car Movement.

The number of cars received and forwarded at Indianapolis has been:

	Week ending— May 1.	May 8.	May 15.	May 22.
1886—Total	19,166	17,950	16,375	18,796
Loaded.....	14,503	13,840	12,848	14,436
1885—Total.....	16,406	17,609	17,547	16,975
Loaded.....	12,162	13,212	13,156	12,848

The west-bound movement of loaded cars is still large. In the east-bound movement an increase of grain is reported, and also a heavier movement of live stock and lumber.

Pacific Coast Passenger Travel.

Saturday, May 8, was the anniversary of the completion of the first through railroad line between California and New York. The event was allowed to pass, and was probably not even thought of by the many who participated in the ceremonies of driving the last spike 17 years before. If there are to be any more special holidays appointed, the claims of May 8 ought not to be forgotten, as it witnessed the forging of a band of steel uniting the Atlantic with the Pacific. The railroad has done much for the development of California. The first through train for New York left Sacramento, May 10, 1869. The line between Sacramento and San Francisco was built afterward. Some of the pioneers were six months in getting from New York by sail vessels around Cape Horn. Upon the completion of the Panama Railroad, by the use of steamers between New York and Aspinwall and Panama and San Francisco, the time was reduced to 30 and even 25 days. The completed railroad between New York and Sacramento in 1869 reduced the time to 8 days; and after the iron track reached Oakland the time was further reduced to 7 days. It has since been cut down to 6 days. A special train once covered the distance in about 4 days when the ordinary time was 7 days. The funeral train of the late Senator Miller arrived here on March 18, in a little less than 5 days.

The monthly statistics of through railroad travel over the Southern Pacific system between California and other states for the seventeenth year of the existence of the road ending May 1, 1886, are as follows:

	Arrived.	Departed.
May, 1885.....	5,958	3,697
June.....	4,643	3,615
July.....	3,940	3,391
August.....	3,440	3,460
September.....	6,150	2,119
October.....	5,400	3,084
November.....	5,083	2,408
December.....	4,127	1,830
January, 1886.....	2,631	1,516
February.....	2,853	3,253
March.....	10,189	10,948
April.....	16,992	10,235
Totals.....	71,406	49,856

The arrivals for the last two months were unusually numerous, and due to the cut in fares inaugurated about the middle of February and maintained for over two months thereafter. For some days, during this period of competition, first-class limited fare from San Francisco to New York was as low as $25. In the latter part of April, there was a general advance, but the old rates were not restored, and it is doubtful if they ever will be. Prior to April, 1886, the largest monthly arrivals were 12,716 in May, 1875. The arrivals for the railroad year ending as above are the largest in the existence of the road. By calendar years, the total has been exceeded twice, namely in 1883, when the total arrivals were 73,700, and again in 1875, when the total arrivals were 74,889.

The through passenger record since the opening of the first road in May, 1869, to May 1, 1886, is as follows:

Year.	Arrived.	Departed.	Gain.
1869-70.....	26,600	18,100	8,500
1870-71.....	30,600	24,300	6,300
1871-72.....	28,700	20,700	8,000
1872-73.....	38,100	22,800	15,300
1873-74.....	52,900	26,100	26,800
1874-75.....	63,300	25,700	37,600
1875-76.....	70,300	32,800	37,500
1876-77.....	61,400	37,000	24,400
1877-78.....	42,500	29,800	12,700
1878-79.....	37,700	25,100	12,600
1879-80.....	34,700	24,700	10,000
1880-81.....	34,300	29,000	5,300
1881-82.....	54,000	33,700	20,300
1882-83.....	63,600	37,500	26,100
1883-84.....	69,500	40,300	29,200
1884-85.....	58,900	39,000	19,900
1885-86.....	71,400	49,900	21,500
Totals.....	838,500	516,500	322,000

The net gain in railroad travel in the above period represents nearly one-third of the present population of the state, and shows what important factors the overland routes have been

in building up the material interests of the commonwealth. During the past year the Atlantic & Pacific road has dropped off some passengers in the southern countries *via* the California Southern road at Colton and Barstow, which are not included in the above figures, because they have not been on any of the leased lines of the Southern Pacific. Otherwise the above figures represent all the through travel between California and the Atlantic states by rail.—*San Francisco Bulletin.*

Chicago East-bound Pool.

The arbitrators who were recently appointed to fix the percentages for the roads in the Chicago east-bound pool met in Chicago, May 24, but none of the managers desired to submit any arguments in addition to the written statements previously sent. It is said that a decision may be expected early next week.

Arizona and New Mexico Pool.

At a meeting held in Denver last week it was resolved to maintain the Arizona and New Mexico pool. It was also decided that the agents of the different lines at El Paso should be removed, and all business there will hereafter be conducted by the local agents. It was also decided that all goods hereafter shall be billed to El Paso and rebates given only on actual shipments made to the City of Mexico.

Petroleum.

The production, shipments, etc., of the Pennsylvania and New York oil wells for April are given by *Stowell's Petroleum Reporter* as follows, in barrels of 42 gallons:

	1886.	1885.	Inc. or Dec.	P.c.
Production	1,938,360	1,780,290	I. 158,070	8.9
Shipments	2,070,468	1,823,726	I. 24,742	13.5
Stock, April 30	33,823,385	36,464,800	D. 2,641,415	7.2
Producing wells	24,269	22,093	I. 2,176	9.9

Of the total production the Alleghany District in New York furnished 8.1 per cent.; the Bradford District in Pennsylvania, 40.1; the Warren District, 15.3; the Lower District, 44.6 per cent. The Lower District is now the chief producing region, owing to recent developments.

Stock was diminished by 132,108 barrels during the month, that being the excess of shipments over production.

The shipments for the month were divided as follows, in barrels:

	Crude.	Refined.	Total.	P. c.
New York	524,184	60,189	584,373	28.2
Philadelphia	558,672	152,311	710,963	34.3
Baltimore	96,807	10,669	107,476	5.2
Boston	19,290	44,085	63,375	3.1
Cleveland	326,447	.....	326,447	15.8
Pittsburgh	51,759	.....	51,759	2.5
Local points	181,172	44,903	226,075	10.9
Total	1,758,311	312,157	2,070,468	100.0

In this statement the refined oil is that refined at the Creek refineries in the oil region; it is reduced to its equivalent in crude, so that the total represents the amount of crude oil shipped to each point, whether sent in crude or in refined form.

Central Traffic Association.

A dispatch from Chicago, May 26, says: "The Executive Committee of the Central Traffic Association held an important meeting here to-day. The first thing done was the formation of pools to include all the business passing through the gateways which have heretofore evaded the pool between Chicago, Peoria and St. Louis. It was agreed that the business passing through Beardstown, Seneca, Dwight, Streator and Kankakee be included in the Chicago pool. The Commissioner was directed to prepare the contracts covering these new pools and submit them immediately to the Executive Committee and the roads directly interested. The new pool covers all business from the Mississippi River north of St. Louis and south of Rock Island. It takes up the business where it is left by the Southwestern Railway Association, and thus helps to complete a system of rate-maintaining pools north of the Ohio River from the Missouri River to the Atlantic seaboard. The percentages to govern the intermediate pool will be secured by arbitration, but the arbitrators have not yet been selected. The admission of the Chicago & Atlantic road then came up. Commissioner Blanchard read a telegraphic answer to his proposition of the previous day, sent him by President Benedict. To this proposition a counter-proposition was telegraphed after some debate by the Commissioner. It is probable that the President of the Chicago & Atlantic will submit the latest proposition to his board of directors, and if Mr. F. Broughton, the General Manager, is there, then it is possible that an understanding may be arrived at to-morrow. The differences between the Association and the Chicago & Atlantic are now merely a matter of percentages, the latter road being anxious to have its allotted share of the business fixed before it becomes a member. The subject of selecting an Arbitrator for the passenger department in the place of Mr. Hugh Riddle, resigned, came up. The subject was referred to the Passenger Committee, with the request that it prepare a list of five names from which to select one or more arbitrators."

RAILROAD LAW.

Contract against Public Policy.

The Des Moines & Fort Dodge Railroad Co. recently came into the United States Circuit Court in the Wabash foreclosure suit as intervenor, asking that the Receivers of the Wabash, St. Louis & Pacific road be required to carry out a certain contract under which it was agreed that all the traffic of the narrow-gauge line from Des Moines to Fonda should be turned over to the Des Moines & Fort Dodge road at Waukee. The contract was made when the road was under construction from Waukee to Adel and Fonda, and was for 20 years, the Fort Dodge Co., in consideration of the contract, agreeing to transport materials at a nominal rate. Subsequently the narrow-gauge line was extended from Waukee to Des Moines and the business taken away from the Fort Dodge road.

The Circuit Court now refuses the petition of the intervening company, and holds that the contract was void, as being against public policy. The Receivers, therefore, will not be required to carry it out.

Agent for Two Companies Must Have Consent of Both.

In the case of Flanigan against the Pennsylvania Railroad Co., the Pennsylvania Supreme Court has just decided as follows:

The North & West Branch Railroad Co. built a railroad from Catawissa to South Wilkes-Barre. The Pennsylvania Railroad subsequently leased the road, and then made a traffic contract with the Lehigh Valley Railroad, by which the passenger trains of the Pennsylvania ran over the rails of the Lehigh Valley Co. from South Wilkes-Barre to the Wilkes-Barre station of the latter company, upon the basis of a traffic charge of 5 cents per passenger. Mr. Flanigan, who was at that time the ticket agent of the Lehigh Valley at the Wilkes-Barre station, immediately received from the Pennsylvania Railroad Co. a certificate of his appointment as its ticket agent for Wilkes-Barre, and gave bond to the company for the faithful performance of his duties as such agent. Not receiving any compensation from the Pennsylvania Railroad Co. for his services, he brought suit in the Common Pleas of Luzerne County to recover his compensation, and testified at the trial that the Pennsylvania Railroad Superintendent for the North & West Branch had always held out to him that he was to be paid for his services and that he had promised that he would be paid. Flanigan recovered a judgment in the Common Pleas, but this has now been reversed by the Supreme Court in an opinion by Mr. Justice Green, in which it is held that in this case the traffic charges of 5 cents per passenger included all service of the Lehigh Valley Railroad Co.'s agents, and Flanigan, who was paid by the Lehigh Valley Co., had no right of action against the Pennsylvania Railroad Co. unless he showed an express contract by the Pennsylvania that he should be paid, and express consent by the Lehigh Valley that he should receive such payment. The evidence of a contract for payment was too vague to establish his right, and no express consent by the Lehigh Valley was shown.

Tax to Pay Expenses of Railroad Commission.

Some time ago the trustee under the first-mortgage on the Greenville & Columbia road filed a bill in the United States Circuit Court to test the constitutionality of an act of the state law, levying a tax upon the company for the purpose of paying the expenses of the South Carolina Railroad Commission, including the salaries of the commissioners. The case was tried before the Circuit Court in Charleston recently, Chief Justice Waite presiding. The Court has now rendered its decision, which is against the trustee, and maintains the constitutionality of the law. The Court holds that the appointment of the commission is an ordinary exercise of the police power of the state, the necessity of which is within the discretion of the Legislature, and a state has authority to levy a tax to pay for such regulations.

OLD AND NEW ROADS.

Addison & Northern Pennsylvania.—Surveys are being made for an extension of this road from its present terminus at Addison, N. Y., to Painted Post, where it will connect with the Delaware, Lackawanna & Western. The distance is about 10 miles.

Boston, Concord & Montreal.—At the annual meeting on May 24, a remonstrance was unanimously adopted against the bill now before the Massachusetts Legislature, authorizing the Boston & Lowell Co. to buy the stock of this company, or to acquire possession of the road by consolidation.

The election resulted in an almost complete change in the board, only one of the old directors being re-elected. The change was made by a syndicate of gentlemen, residents of New Hampshire, who have bought a large interest in the stock recently. They do not now, it is understood, hold a majority of the shares, but have secured the co-operation of a number of the small stockholders, which will give them a controlling vote. The stock bought by this syndicate includes the large blocks formerly held by Mr. Samuel N. Bell, of Manchester, N. H., and by J. Thomas Vose, Peter Butler, and the Lyon Estate, of Boston. The negotiations were very quietly conducted, so quietly indeed, that even the officers of the Boston & Lowell Co., which leases the road, had no idea of what was going on until a day or two before the election.

This New Hampshire party have acted in the expectation that the lease of the road will be set aside by the Supreme Court in the suit now pending for that purpose, and their intention as announced is to unite this road by lease or consolidation with the Concord and the Northern roads, forming one system under local control, and confining the Boston & Lowell to its Massachusetts lines. Of course, it is possible that the Supreme Court decision may establish the validity of the present leases, but in that event there will probably be little or no loss, as it is understood that the stock was bought at about the current market price, which is not likely to fall much in any event.

Buffalo, New York & Philadelphia.—The statement for April and the seven months of the fiscal year from Sept. 1 to April 30 is as follows:

	April.		Seven months.	
	1886.	1885.	1885-86.	1884-85.
Earnings	$214,676	$182,557	$1,416,963	$1,285,398
Expenses	174,338	139,972	1,109,133	989,277
Net earnings	$40,338	$42,585	$307,830	$296,121

For the seven months the gross earnings increased $131,565, or 10.2 per cent., and the expenses $119,856, or 12.1 per cent., leaving a gain of $11,709, or 3.9 per cent., in net earnings.

Canadian Pacific.—This company has let the contracts for the extension of its Ontario & Quebec line from the present terminus at Smith's Falls to Montreal. The new extension will be about 126 miles long, and will shorten considerably the distance between Montreal and Toronto, besides providing the Canadian Pacific with a direct eastern outlet to its Montreal terminus. The contracts call for the completion of the grading and masonry in October next.

Cape Breton.—In the Dominion Parliament at Ottawa, May 19, the Minister of Railways gave notice of resolutions that the government be authorized to construct a railway from the Straits of Canso to Louisburg, or Sydney, Cape Breton, as a public work; that the government railway act of 1881 apply to such work, and that the location and all other incidents of said work shall be determined by the Governor in Council.

Chester & Centralia.—This company, which was organized some time ago to build a railroad from Chester, Ill., to Centralia, on the Illinois Central, a distance of 64 miles, is now asking for subscriptions along the line, and has already secured a considerable amount.

Chicago & Indiana Coal.—This road, late the Chicago & Great Southern, was opened for traffic through to Brazil, Ind., May 24, when regular trains began running to the new terminus.

Chicago, Milwaukee & St. Paul.—It is announced that this company has contracted with a syndicate of bankers for the sale of $6,000,000 of Chicago & Pacific Western Division 5 per cent. bonds, which are to be issued to provide funds for the building of the Kansas City extension. The syndicate includes the firms of August Belmont & Co., Kuhn, Loeb & Co., and Speyer & Co.

Chicago, St. Paul, Minneapolis & Omaha.—A dispatch from St. Paul, Minn., May 26, says: "The Supreme Court to-day decided the Sioux City land grant test case adversely to the state, holding that the sale of the road to the Omaha Co. did not forfeit the lands granted originally to the company."

Connecticut Central.—In the foreclosure suit brought by the State Treasurer of Connecticut, the Court has issued an order of strict foreclosure. The Court finds that the amount of unpaid interest is $136,500, and orders that it be paid within thirty days. The road will not be sold, but, if not redeemed by the company, it will pass into the possession of the bondholders.

Delaware, Lackawanna & Western.—It is reported that this company will build extensive repair shops at East Buffalo, where the repair work of the Buffalo Division will be done.

East Tennessee, Virginia & Georgia.—The statement for April and the ten months of the fiscal year from July 1 to April 30 is as follows:

	April.		Ten months.	
	1886.	1885.	1885-86.	1884-85.
Earnings	$277,376	$276,698	$3,514,276	$3,470,221
Expenses	250,151	232,877	2,197,834	2,274,484
Net earnings	$27,225	$43,821	$1,316,442	$1,195,737

For the ten months the gross earnings increased $44,055, or 1.3 per cent., and the expenses decreased $76,650, or 3.4 per cent., the result being a gain of $120,705, or 10.1 per cent, in net earnings.

In the United States Circuit Court in Savannah, May 22, a bill in equity was filed by James A. Strong and James G. Goodwin, trustees under the old second mortgage on the Macon & Brunswick road, asking for a foreclosure of that mortgage. The bill alleges that the seizure of the Macon & Brunswick by the Governor of Georgia, to satisfy the lien of the state, was illegal, and that hence the second mortgage retained its lien and is prior to the general mortgage placed upon it by the East Tennessee, Virginia & Georgia Co., after that company purchased the road from the state. The trial of the case will involve some nice legal questions.

The road was sold under foreclosure May 25, as noted elsewhere. The sale of the entire line, however, will not affect the suit noted above, as it was made subject to all liens prior to the general mortgage.

It is reported that a compromise has been arranged with the dissenting holders of stock and income bonds, and that the time for closing the reorganization agreement has been extended to June 3 next.

Flint & Pere Marquette.—The petition of the common stockholders was presented at the annual meeting in East Saginaw, Mich., last week and was referred to the new board of directors. The stockholders desire that their present stock should be retired and replaced by new stock having voting power. The passing of the full dividend on the preferred stock last year will still postpone for several years the right of the common stockholders to vote unless some change is made.

Fremont, Elkhorn & Missouri Valley.—At the annual meeting last week the stockholders voted to increase the capital stock from $15,000,000 to $30,000,000. It was also resolved to authorize the board to construct the Lincoln Branch, 52 miles long, and the Schribner Branch, 63 miles.

Kansas City, Memphis & Birmingham.—Capt. A. W. Gloster, Principal Assistant Engineer of the Western Division (Memphis, Tenn., to the Alabama state line) has begun active work on the location of the road. He has established his headquarters in Memphis, with Mr. Frank Matthews in charge, and has three surveying parties in the field. One, under Capt. T. S. Newcomb, is working eastward from Memphis; one, under Capt. C. H. Jones, is operating both ways from the Illinois Central crossing, while the third, under Capt. Turner, is running lines both east and west from the Mobile & Ohio crossing.

Lake Shore & Michigan Southern.—This company and the Pennsylvania Co. are now actively at war over the crossings at Erie, Pa. Both roads are reported as blocking the switches with cars and derailed engines, each trying to prevent the other company from taking possession of the disputed ground.

Louisville & Nashville.—The statement for March and the nine months of the fiscal year from July 1 to March 31 is as follows:

	March.		Nine months	
	1886.	1885.	1885-86.	1884-85.
Earnings	$1,103,934	$1,281,516	$10,039,609	$10,041,793
Expenses	708,903	705,184	6,199,481	6,085,467
Net earnings	$395,031	$576,332	$3,840,218	$4,556,326

Expenditures for construction and improvements in March of this year were $11,791, leaving a net balance of $383,240.

For the three months the gross earnings decreased $602,094, or 5.7 per cent., and the expenses increased $114,014, or 1.9 per cent., the result being a decrease of $716,108, or 15.7 per cent., in net earnings.

Louisville Southern.—A Louisville dispatch reports that an effort is being made to revive this project for a line from Louisville, Ky., southward, to compete with the Louisville & Nashville. The projectors have secured the passage of an act through the Legislature of restoring to the company its franchises forfeited by the failure to construct, and also restoring the consent given by the original charter to the sale of $1,000,000 of the company's bonds to the city of Louisville.

Marietta & North Georgia.—At the annual meeting last week the President reported the earnings largely increased, the gain being due in good part to heavy shipments of marble from quarries along the line. The road is in good condition and is ready to be changed from 3-ft. to standard gauge, the bridges, cuts and other works being all of sufficient width. This road enjoys the distinction of having all its bridges, abutments and piers built of white marble. Work on the extension to Murphy is being pushed as fast as the difficulties of construction will admit.

Mexican National.—The statement for the quarter ending March 31 is follows:

	Earnings.	Expenses.	Net earn.
Northern Division	$120,250	$102,365	$17,885
Southern Division	223,520	174,004	49,516
Total	$343,770	$276,369	$67,401

These earnings are in Mexican currency. The branches contributed $4,843 gross and $144 net to the earnings of the Northern Division. The Southern Division branches earned $23,583 gross and $3,917 net.

Mexican Railroad Notes.—The following notes are from the Mexican *Financier* of May 8:

During the month of March, 6 kilometers, 500 meters of track were finished on the Cardenas & Grijalva River Railroad in the state of Tabasco.

There have been 150 tons of rails received for the Merida Railroad and 150 tons more are soon expected to complete the 8 kilometers now unbuilt to the hacienda of Hunabchéen, a point which the company must reach in order to secure a traffic with the southern part of the state of Yucatan.

The following notes are from the *Mexican Financier* of May 15:

The Mexican National Railroad has been built to Patzcuaro, and trains will soon run to that point.

Congress has approved the contract made by the President with the government of Durango for the construction of the proposed railroad from the capital of that state to the station of Cañitas on the Mexican Central.

The *Eco de Hidalgo* comments upon the cost of transporting goods to Pachuca, owing to the transfer at Irolo, and calls for a through car service from points on the Mexican National and the Morelos railroads to Pachuca.

Mobile & Ohio.—The statement for April and the ten months of the fiscal year from July 1 to April 30 is as follows:

	April		Ten months.	
	1886.	1885.	1885-86.	1884 85.
Earnings	$128,068	$128 428	$1,727,514	$1,869,586
Expenses	115,943	134,303	1,214.019	1,325,621
Net earnings	$12,125	*$5.875	$513,495	$543,965

* Deficit.

For the ten months the gross earnings decreased $142,072, or 7.6 per cent., and the expenses $111,602, or 8.4 per cent., leaving a decrease of $30,470, or 5.6 per cent., net earnings.

New York & New England.—At a meeting of the board in Boston, May 25, the matter of a dividend on the preferred stock was definitely settled by the following vote:

"*Voted*, That it is the sense of this board that a dividend of 3½ per cent. for the six months ending March 31, 1886, has been earned and is on hand, and should be paid to the holders of preferred stock so soon as it can be legally declared."

The legal requirements are under consideration by the counsel of the road, and the dividend will doubtless be declared as soon as some formal matters are adjusted. The legal obstacles are in the Connecticut law regulating railroad corporations.

New York, Ontario & Western.—The statement to the New York Commission for the quarter ending March 31, is as follows:

	1886.	1885.	Decrease.	P.c.
Earnings	$256.134	$394,499	138,365	35.1
Expenses	249,943	379,210	129,267	34.1
Net earnings	$6,191	$15,289	$9,098	59.5
Other income	.....	24,341	24,341	100 0
Total	6.191	$39.630	$33,439	84 4
Interest, taxes and rentals	78,938	113,901	34.963	30.7
Deficit	$72,747	$74,271	$1,524	2 1

The statement for the quarter this year does not include the line from Cornwall to Weehawken, 52 miles, which was included last year.

New York, Rutland & Montreal.—This company, which purchased the old Lebanon Springs road at foreclosure sale, is making arrangements to put the line in good condition and renew the track with steel rails. The line extends from Chatham, N. Y., to Bennington, Vt., 58 miles.

Norfolk & Western.—The statement for April and the four months to April 30 is as follows:

	April.		Four months.	
	1886.	1885.	1886.	1885.
Earnings	$267,559	$206,484	$985,561	$852,436
Expenses	158,160	137,161	593 232	521,675
Net earnings	$109,399	$69,323	$392,329	$330,761
Per cent. of exps.	59	66	60	61

For the four months the gross earnings increased $133,125, or 16 per cent., and the expenses $71,557, or 14 per cent., leaving a gain of $61,568, or 19 per cent., in the net earnings

North Arkansas.—This company has filed articles of incorporation to build a railroad from Rabendon Springs, Ark., northward to the Missouri line, a distance of about 25 miles.

Northern Central.—This company's statement for April and the four months to April 30 is as follows:

	April.		Four months.	
	1886.	1885.	1886.	1885.
Earnings	$411,397	$450,010	$1,702 628	$1,726 635
Expenses	270,756	259,242	1,046,201	1.002,911
Net earnings	$140,641	$190,768	$656.427	$723,724

For the four months the gross earnings decreased $24,007, or 1.4 per cent., and the expenses increased $43,290, or 4.3 per cent., the result being a decrease of $67,297, or 9.3 per cent., in net earnings.

Ohio River & Lake Erie.—This unfinished road was seized by the sheriff, May 25, at suit of E. W. Reed and others on a claim for $66,000. The road was intended to run from Erie, Pa., to Sharpsville on the bed of the old canal. It is partly graded, but no rails have been laid.

Oregonian.—The Court has authorized the Receiver of this road to borrow $100,000 for the purpose of rebuilding bridges and making other necessary repairs, and to issue certificates to that amount. The Receiver, Mr. Charles N. Scott, asks bids for the loan, the interest not to exceed 9 per cent., the loan to run for six years, with the option to the borrower of replacing the principal in six equal installments, to be paid either on each year, or two each second year, or three each third year, from the date of the loan.

Oxford & Clarksville.—This company proposes to build a railroad from Oxford, N. C., northward to Clarksville, Va., about 20 miles. The town of Oxford will vote on June 10 on the question of subscribing $40,000 in aid of the proposed line.

Pennsylvania.—A new branch has been completed on the Middle Division, extending from a point near Altoona, Pa., to the Tipton coal mines. It is 4½ miles long, has been built by the Tipton Run Co. and will be operated by the Pennsylvania Railroad Co.

The Relief Fund reports under date of May 21 that there are at present nearly 12,000 members entitled to the benefits of the scheme. Before it was made entirely voluntary about 18,000 members signified their intention of joining, but about one-third of them withdrew their names when the modifications were made, taking effect May 1. The membership is increasing constantly, and the managers feel assured that the plan will be entirely successful. So far over $10,000 have been paid in death benefits, and about $8,000 on account of sickness.

The statement of the business of all lines east of Pittsburgh and Erie for April, 1886, as compared with the same month in 1885, shows an increase in gross earnings of $157,727; increase in expenses, $109,811; increase in net earnings, $47,916. The four months of 1886, as compared with the same period of 1885, show an increase in gross earnings of $1,041,997; increase in expenses, $451,328; increase in net earnings, $590,669.

Carrying out these comparisons, we have the following statement:

	April.		Four months	
	1886.	1885.	1886	1885.
Earnings	$3,862,617	$3,704,890	$14,735.487	$13,693,460
Expenses	2,541,753	2,431,942	9,889.893	9,438,565
Net earnings	$1,320,864	$1,272,948	$4,845,594	$4.254,925

All lines west of Pittsburgh and Erie for the four months of 1886 show a deficiency in meeting all liabilities of $187,313, being a decreased deficiency as compared with the same period of 1885 of $190,777.

Philadelphia & Reading.—The Receivers have made arrangements with Messrs. Drexel & Co., of Philadelphia, to purchase the coupons and registered interest accruing June 1 on the consolidated mortgage bonds. As they have done heretofore in several cases, Drexel, Morgan & Co. will retain the coupons until the advance is repaid by the Receivers.

The Philadelphia *Ledger*, usually well informed and careful in its statements, says of the present condition of the company's affairs: "The hearing of testimony from the bondholders who signed the petition for foreclosure was continued on Saturday, and it is regarded as demonstrated that much more than the necessary one-tenth of the general mortgage holders desire the foreclosure, so that the legal proceedings will go on. Otherwise Reading reorganization movements remain in abeyance, excepting that the stock has strengthened recently upon rumors that Mr. Gowen's much delayed plan is at length to be forthcoming. Upon inquiry we learn that with the encouragement of a prominent retail merchant of this city, who is a director of the Reading Co., and who is said to be a subscriber, an effort is being made to get various gentlemen interested in Reading securities to subscribe to a syndicate to back the plan, but with indifferent success. At the same time efforts are also being made in a quiet way to ascertain if the Morgan-Welsh syndicate will hearken to an idea propounded by some of the New York gentlemen who were recently prominent in trying unsuccessfully to change the Trustees' plan, whereby a compromise may be arranged so that Mr. Gowen and these gentlemen can be permitted to join hands with the syndicate. Considerable diplomacy is going on in this quiet way (with the negotiators mainly on one side, however), and this evidently assists in postponing the appearance of the new plan. The financial strength of the proposed syndicate which is expected to guarantee this plan still remains in a condition of decided nebulosity, and the individual guarantors, so long as they continue in their present modest retirement, are having their sincerity as well as their financial ability doubted by the street. Of the outcome of the diplomacy above referred to we are unable to speak further than that the Morgan-Welsh syndicate, being a complete organization formed for a specific purpose, is quite likely to pursue its path without complicating its future by assuming new duties or connections. The announcement was made by the President of the Provident Life & Trust Co. on Saturday that that company had deposited $250,000 Reading general mortgage bonds under the Trustees' plan."

Pittsburgh & Lake Erie.—Several of the manufacturers at points along the Ohio River are trying to secure the construction of a branch to leave this road at Phillipsburg, in Butler County, Pa., and run along the south side of the Ohio to New Cumberland, in Hancock County, W. Va., a distance of about 30 miles. There are extensive firebrick works and other factories on the proposed line.

Pittsburgh, Marion & Chicago.—Sealed proposals will be received at the office of this company at No. 81 New street, New York, until noon on June 1 for the building of the section of the road from New Lisbon, O., to Rogersville, 9 miles. Further information can be obtained at the office. Bids must be addressed to W. S. Gurnee and John J. Holly, Construction Committee.

Richmond & Danville.—This company has been for some time erecting a large iron bridge over the Yadkin River near Salisbury, on the North Carolina Division, to replace the old wooden bridge. A sudden flood in the river on May 19 carried away both the old bridge and the new one, with all the false-work used in erection.

Rochester, Hornellsville & Lackawanna.—This company has been organized to build a railroad from Hornellsville, N. Y., to Canaseraga on the Lackawanna & Pittsburgh road. It is said that an offer has been made by certain parties to build the railroad provided the people along the line will subscribe $65,000 in addition to securing the right of way.

Rochester & Pittsburgh.—The Pennsylvania Supreme Court last week heard arguments on the appeal from the Common Pleas of Elk County on the injunction granted by that court to prevent the completion of the foreclosure and sale of this road and the transfer of the line in Pennsylvania to the purchasers at that sale. The main points brought up by the defendants were that the consolidation of the Pennsylvania and New York corporations was illegal; that the increase of capital stock made at the time of their consolidation was not authorized, and that the foreclosure was collusive and fraudulent. All these points are contested by the purchasers.

San Joaquin & Sierra Nevada.—A considerable amount in stock subscriptions has been raised for the purpose of extending this road from its present terminus at Brock's Landing, Cal., on the Mokelumne River, to the town of Stockton.

St. Johns & Halifax.—This road is now graded for the greater part of its length and track has been laid this year from Ballstown, Fla., on the St. Johns River opposite Palatka, to the Tomoka River, a distance of 40 miles. The road is to run from Ballstown to the head of the Indian River, a distance of about 80 miles.

St. Louis Coal.—In the foreclosure suit brought by the bondholders of this company the United States Circuit Court in Springfield, Ill., has granted an order of foreclosure and sale. The company owns only about 10 miles of road, extending from Carbondale, Ill., to Harrison Junction, but it leased several short lines, making in all 93 miles operated. By the last statement the company had $100,000 first-mortgage and $150,000 income bonds.

St. Louis, Fort Scott & Wichita.—In Topeka, Kan., May 19, the Union Trust Co., of New York, as trustee, brought suit to foreclose the first mortgage of $4,000,000 on this road. Notice was served on the company of the complaint and application for a receiver, and argument was to be heard May 26. The road has been for some time past controlled by the Missouri Pacific Co.

St. Louis & San Francisco.—Grading on the extension of this road from Fort Smith, Ark., southward, is progressing rapidly, and the road-bed is well advanced for some distance. The engineers are locating the line through the Indian Territory toward the Texas line.

St. Paul & Duluth.—The directors, at a meeting held in St. Paul, have agreed to submit to the stockholders changes which will authorize the board to temporarily change the application of the net income of the company, as prescribed in the "plan of sale, purchase and reorganization" finally effected June 27, 1877.

It appears that not less than $500,000 will be needed to make the improvements suggested in the annual report of the board for the year 1885, and therefore, at the meeting of the stockholders of this company, to be held June 21, the stockholders will be requested to vote on the adoption of the following changes, to wit:

"1. The board of directors shall have authority to suspend the purchase or drawing of preferred stock, and to apply the net proceeds from stumpage and the sale of lands, not required in paying dividends upon preferred stock, to such improvements, additions and betterments of and to the road and its equipment, as they shall deem necessary for the full and efficient operation of the road.

"2. The board shall also have power to increase the dividends upon the common stock to 7 per cent., whenever the net earnings of the railroad shall be found to warrant it.

"3. Any surplus of net earnings of the railroad, which may remain after paying a dividend of 7 per cent. upon the preferred stock and a like dividend upon the common stock, shall be divided equally upon the two classes of stock.

"4. Such suspension of the application of the net income shall continue only so long as it may be needed to accomplish the necessary improvements, additions and betterments."

Heretofore, under the old plan of reorganization, the preferred stock was to be retired at par, and 7 per cent. dividends were payable on it before the common could receive anything.

Sheffield & Birmingham.—Mr. R. G. Herve7 sends us the following statement in correction of an item concerning this road, which was published last week:

"The simple fact is that a land company in Alabama agreed, in writing, with me last August, that if I would buy the road from the then owners they would deposit in the Knickerbocker Trust Co. in New York $360,000 of their stock, to be exchanged for $360,000 of railroad stock on my completing 45 miles of road by June 18 next. I immediately purchased the road, but the land company then claimed some misunderstanding, and would not deposit the stock, and has never yet taken any steps to comply with the agreement with me.

"Meanwhile Mr. Ensley made me an offer to pay me a fair profit for the property, which I accepted. As I have issued no bonds, paid the estimates and all other bills promptly in cash every month, and do not owe anybody a dollar, invidious remarks seem out of place, nor does it seem probable that a railroad company, every share of whose stock (except qualifications of directors) was owned by me, would call a meeting in hostility to me.

"I need only add that if there are anyobligations or agreements in connection with that company, during my ownership, Mr. Ensley has assumed my place, and is unquestionably responsible."

Southern Pacific.—The San Francisco *Bulletin* says: "Col. Fred Crocker arrived Sunday night from his tour of inspection of the country through which the railroad extension south of Soledad will run. The route south of San Miguel has not yet been definitely fixed, but it will pass through San Buenaventura, Santa Barbara and through the Gaviota Pass to San Luis Obispo. The point at which connection with the main line of the Southern Pacific will be made has not yet been determined upon. About 1,500 men are now at work at Soledad, and others will soon be sent down. The track is already laid 2½ miles, but is now delayed by the trestling of an arroyo. The first 12 miles are the most difficult of the entire line. The remaining portion of the route lies over comparatively level country, and offers no serious obstacles to engineering. The entire road to San Miguel will be completed during the summer."

Southern Pacific Co.—The statement for the three months to March 31 is as follows:

	Atlantic System.	Pacific System.	Total.
Earnings	$2,028,650	$4.845,089	$6,873,739
Expenses	1,526,935	2,534,220	4,061,205
Net earnings	$501,665	$2,310,869	$2.812,534
Add rental of leased lines			140.041
Total net income			$2,952,575
Interest, rentals and all charges		$3,554,808	
Construction and improvement		57,976	
			3,612,884
Deficit for the quarter			$660,209

As compared with 1884, the total gross earnings increased $41,289, or 0.6 per cent., and the expenses $208,157, or 5.4 per cent., leaving a decrease in net earnings of $66,868, or 2.3 per cent. The Pacific System shows an increase in net earnings of 10 per cent., but the Atlantic System a decrease of 35½ per cent.

Springville & Sardinia.—The bondholders who bought this road at foreclosure sale have finally decided to abandon it, and have sold the equipments and part of the iron, which will be taken up. The road extends from Springville, N. Y., to Sardinia, on the Buffalo, New York & Philadelphia, but its value was destroyed by the building of another line through Springville.

Texas & Pacific.—The stock and bondholders opposed to the plan of the Reorganization Committee, published a few days ago, held a meeting in Philadelphia, May 25. The Philadelphia interest were represented by L. H. Taylor, Jr., R. H. C. Hill, J. R. Smith, Gordon Monges, J. J. Stadiger and Jos. P. Mumford, and the Rio Grande Division bondholders of New York by P. J. Goodhart and Isaac L. Rice, and the stockholders of that city by M. Burr, Jr. The advisability of continuing the operation of the road under the present Receivers was discussed. It is contended by the opponents of the plan for the rehabilitation of the Texas & Pacific, formulated by the committee of which General I. J. Wister is Chairman, that, with an expenditure of money to be secured by an issue of Receivers' certificates and otherwise, the several divisions of the road can make a better exhibit of their respective earning capacity, and then, if found necessary, the properties of the company can be reorganized on the basis of the result. Mr. S. B. Huey, the Chairman of the meeting, was authorized to appoint a committee of the New Orleans Division bondholders to confer with the committee of bondholders of the other divisions for the benefit of all interests.

Texas & St. Louis.—The property of this company in Texas was finally conveyed to the St. Louis, Arkansas & Texas Co., as purchaser at foreclosure sale, by the Special Master acting under direction of the Court.

Toledo, Ann Arbor & North Michigan.—Grading on the extension of this road is now nearly completed to Mt. Pleasant, and tracklaying will shortly be commenced from the present terminus with a view of completing the line as quickly as possible.

Toledo, Cincinnati & St. Louis.—The Special Master appointed by the Court was last week taking testimony in regard to the ownership of the section of the road between Frankfort, Ind., and the Illinois state line, the ownership of which is disputed, the original owners claiming that it was not covered by the mortgage on the road and hence was not included in the foreclosure sale. The taking of testimony was to be continued in New York during the present week.

Winnipeg & Hudson's Bay.—A special from Winnipeg say: "The local Legislature has cabled the President of the Hudson's Bay Railroad, who is now in England, that this province will guarantee bonds of the road to the amount of $45,000,000 at 4 per cent. for 25 years; that work might be commenced forthwith, the gauge to be equal in standard to the Canadian Pacific, and that the road must be completed in five years."

Xenia, Piqua & Dayton.—It is proposed to build a railroad from Xenia, O., north by west to Piqua, about 38 miles, with a branch about 14 miles long to Dayton. The need of such a line is not apparent.